Vol. IX MARCH, 1919 No. 3

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PUBLISHED MONTHLY AT
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ADDRESS CORRESPONDENCE TO
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Vol. IX MARCH, 1919 No. 3

A PLAN FOR A MORE EFFECTIVE FEDERAL AND STATE HEALTH ADMINISTRATION.

FREDERICK L. HOFFMAN, LL. D.,
Newark, N. J.

Read before General Sessions, American Public Health Association, at Chicago, Ill,, December 10, 1918.

IT is not only desirable but an essential prerequisite of social progress that inquiry shall be made from time to time concerning the present value and further perfection of existing methods or instrumentalities ministering to human welfare and human wants. Health is so obviously of the first importance that its protection and more or less effective conservation have from time immemorial been made at least a matter of individual, if not collective, concern. Most of the so-called health legislation from the earliest times to the present day, however, has been concerned with the correction of ascertained sanitary or related imperfections, rather than with anticipatory action having for its purpose the prevention of disease and premature death. Much of what is called preventive medicine, even at the present time, is in the direction of prevention of further damage and harm rather than of a character deliberately designed to preclude the occurrence or inception of dangers which so frequently, and practically continuously, threaten the individual and collective welfare in what, for want of a better term, is comprehended as the vast field of public hygiene. The fact must not be overlooked that in its origin, every modern public health organization rests primarily upon the principle of quarantine as applied in the case of recognized infectious or contagious diseases, and the, if necessary, drastic exercise of the police powers on the part of the government, the states, and the civil subdivisions thereof.

Probably the earliest quarantine legislation in this country was adopted by the General Court of Massachusetts in 1647 or 1648, to prevent the introduction of the plague (probably yellow fever) "which was then devastating the West Indies." Unquestionably, and in a large measure, effective quarantine regulations, whether maritime or local, constitute, however, but a fraction of modern health legislation, which has gradually been extended from communities to persons and which now comprehends every conceivable sphere or function of individual and social life. Even an enumeration of the subject-matter of modern public health activities would unduly enlarge upon the present discussion, which is chiefly concerned with future possibilities rather than with past achievements. What is today understood as health conservation concerns largely such an-

ticipatory action as by general consent seems feasible of enforcement, if not in the form of specific statutory requirement, at least in the nature of improved personal conduct in matters concerning both personal and public hygiene. In the broadest sense, therefore, modern health activities have become largely educational, with a view of securing on the part of each and all concerned a better understanding of the principles which govern in the attainment of better health and greater freedom from disease, a more perfect adaptation of the human organism to its environment, and a substantial prolongation of life. The acceptance of this principle has enormously increased the sphere and the function of public health administration and made perfectly obvious the inadequacy of existing methods, whether federal, state or municipal, to effectively serve the true interests of all the people. What in former years, when the nature of epidemic diseases was not understood, was a necessary exercise of the police powers has in modern times become of rather secondary importance. All that is generally comprehended under so-called sanitary legislation, such as the burial of the dead, the control of nuisances, the protection of water supplies, sewage, drainage, etc., is no longer within the realm of debatable public consideration, but is accepted as a paramount necessity of and the rightful prerequisite to a wholesome community life. Even though the principle has not as yet been generally accepted that failure in these matters on the part of the responsible authorities should constitute an indictable offense, it is nevertheless a safe conclusion that such a view is gaining ground, and a number of court decisions seem to settle the question that every community is in duty bound to furnish pure water, to abate dangerous nuisances, to prevent the further spread of communicable diseases, etc. But practically all that concerns the health of the individual and his or her own physical well-being, is still considered primarily and essentially a matter of personal concern only.

It is of the utmost importance that this distinction should be kept clearly in mind in all discussions of a broader national and state health policy. It may then be said that instead of the individual of today being concerned chiefly in the efficient performance of an important but limited state function regarding himself or his family, the modern conception is rather the reverse in that the government or the state is profoundly more interested in the most successful adaptation of each and every individual to his or her environment, be that what it may. Once that this as yet but very imperfectly conceived principle is generally approved, the urgency of a complete remodeling of our federal and state health organizations becomes self-evident. In answer to the argument that such a change would be revolutionary and opposed to traditional conceptions of the freedom of the person, the reply is that, quite to the contrary, a much lesser degree of public and private interference will become necessary, once that the required coöperation of *all* the people in the furtherance of collective health measures is secured. As has been well said by one of the very foremost American authorities on the theory of the state and in defense of decidedly higher conceptions of human society, properly conceived as an incorporated association, inclusive of all the persons composing it,

"It has been found out by experience that *the whole*, by its superior organization, can do some things to which individuals are unequal"; and furthermore, "Will it be said that by such state action individuals are not alike benefited, and so there is a sort of injustice in it? The ready answer is that this is unavoidable, and that no one of these modes of action ought to pertain to society and the state which on the whole does not contribute to the com-

mon good. When courts are instituted for the redress of wrongs, multitudes go through the world who may never have been wronged, and yet were there no courts they might have been wronged daily. Public roads are of no direct good to those who never travel. Great breakwaters and a system of lighthouses help shippers only, in the first instance, and men complain of taxes for such constructions, forgetting that, apart from humanity aiming at the safety of sailors, the prices of imports would be affected by the greater risks of vessels."

Substitute in these illustrations the health of the community as represented by the wide range in the physical well-being of the vast multitude which compose it, any one or all of which are affected to a varying degree by the measures adopted as likely to benefit or improve it, and the parallel is reasonably exact. In other words, the health of the individual, his physical well-being, his strength of disease resistance, his immunity to infectious or contagious diseases, his successful adaptation to ever-changing environmental conditions, etc., should be made the primary concern of the future state instead of being often a matter of mere incidental consideration, as is practically the case at the present time.

Under such a conception the modern health department would assume the functions of a general health *administration* concerned with all the matters which affect the health and physical welfare of the people, and not merely a function sustained almost exclusively by the police powers of the Federal government or the state, and limited in its actual effective operation to a comparatively small, however supremely important, group of activities. No plan as yet proposed by anyone concerned with these matters rests upon such a new principle, or set of principles, but, one and all, the proposals for changes or reforms are merely a modification of a thoroughly restricted theory of health control; conditioned chiefly by the principle of public quarantine and the control of the person under the police powers when found to be afflicted with some contagious or infectious disease, and the control of the environment in matters of obvious public nuisances menacing the health of the people in more or less clearly perceived directions.

Considering that all organized Federal and state health activities are of comparatively recent date; that the earlier boards of health were chiefly concerned with the temporary control of great epidemics; that even so advanced a state as Massachusetts has had a state board of health only since 1869, reorganized in 1886, and that our present Federal public health service dates only from 1903, when broader health activities were recognized in the act excluding immigrants affected with loathsome or dangerous contagious disease, and subjecting such immigrants to medical examination, the progress which has been made is profoundly gratifying, however regrettable it may be that a thoroughly worked out plan, resting upon new principles of personal and public hygiene, should not long since have come into existence. Yet it has been properly pointed out with reference to the first state board of health of Massachusetts, that the same was commanded to take "cognizance of the interests of health and life," and that it was only made a secondary function of the board to study the causes of disease and death. As stated by Professor Whipple in his work on "State Sanitation," "The order in which these subjects are named is not without significance. Health is a great issue, and health is something more than the absence of disease. Health demands not only freedom from disease but a clean environment, comfortable and enjoyable conditions of life, suitable food, satisfactory provisions for work and play and the raising of children," but health is infinitely more than this. Professor

Whipple himself was under the influence of the earlier conception that the functions of a state department of health are primarily concerned, as of course they had to be, with the control of the environment in its relation to the present. The view, however, to be emphasized, and as far as practicable to be supported by the required evidence, maintains that the primary duty of the modern state is to concern itself with the welfare of the person and the successful adaptation of each to his environment, be that what it may; for the wide variations in environmental conditions make absolute uniformity in law, and legislation of rules and regulations of so-called standards frequently undesirable. It has been said in this connection, though, of course, subject to qualification, that, as regards the health of the individual, "The question of muscular strength, of girth of chest, of size, has naught to do with health, the sole test being the adaptability of the body to continue under the circumstances of life in which it is placed—*i.e.*, under its environment." Just because it is so easy and convenient to live by a good rule rather than by trained intelligence and in the light of a thorough understanding of bodily functions, their limitations, their possible impairment, exceptional strength or weakness in individual cases; existence by a hard and fast rule is as likely to prove disastrous as, conversely, by the disregard of common sense requirements applicable to one and all. For, as said by Dr. A. E. Bridger, in his treatise on "Man and His Maladies or the Way to Health,"

> "It follows as a necessary corollary that there can be no general arbitrary standards such as our one-idea men are so fond of assuming, no one perfect diet, no one perfect mode of life, no one fixed amount of ozone in the air, which would, had man but the grace to follow their wise counsels, regenerate mankind, and make all men healthy, wealthy and wise; and that no one fixed combination of these would, or could, ever suffice to that end; and this simply because, as no two men coincide precisely in construction and in the amount, variety, and distribution of forces within the body, no one set of conditions can possibly be adaptable to the whole mass of humanity."

There is a profound truth contained in the foregoing sentence which has, broadly speaking, been ignored in most of the educational efforts carried on during recent years in public health activities, in which, in theory, an average man or an average human type is assumed, although, as a matter of fact, such a concept is merely statistical or philosophical but never real. *Man* defies analysis and subjection to the rigid principles deduced from a study of collective phenomena. After all, every man or woman is, first and last, an individual, and though by means of statistical methods certain average types are clearly to be differentiated from other average types, yet nevertheless there is nearly always a major portion of similarity, at the one extreme, and a major portion of pronounced variability, at the other. In the words of Prof. Alfred C. Haddon, in the introduction to his admirable treatise on "The Study of Man":

> "It seems strange that man should study everything in heaven and earth and largely neglect the study of himself, yet this is what has virtually happened. Anthropology, the study of man, is the youngest of the sciences, but who will say that it is the least important? We may, perhaps, find one reason for this neglect in the peculiar complexity of the subject and the difficulty there is in approaching it from a dispassionate point of view; there are so many preconceived opinions which have to be removed, and this is always a thankless task. Even now the scope and significance of anthropology have scarcely been recognized."

The health service of the future, I am fully convinced, will rest more upon the teachings and practical conclusions of anthropology, and particularly physical anthropology, as chiefly concerned with the ascertainment of the normal human

physique, normal physical standards of bodily proportions and growth, and observed departures therefrom, especially during the early years of life. In brief, I believe that a rational health administration, concerned primarily with the health of the individual, must have its beginnings in a thoroughly well worked out department of physical anthropology, devoted to the eminently practical task of supervising the growth and development of the nation's childhood, and continued through the period of early and late adolescence, inclusive of the entrance into industry or whatsoever vocations or pursuits or activities may be followed prior to the attainment of complete maturity.*

In 1904 a classical report was made by an exceedingly able Departmental Committee appointed by the British Government to inquire into the subject of physical deterioration. The recommendations made by that committee, however, were contemptuously disregarded! Had they been followed, there would be less anxiety today concerning the future physical well-being of the people of the United Kingdom. The conclusions advanced by that committee are applicable to every civilized and more or less industrially developed country. Among the principal recommendations of the committee were (1) the suggestion for an anthropometric survey, which should have for its object the periodic taking of measurements of children and young persons in schools and factories; (2) a register of sickness not confined to infectious diseases; and (3) an advisory council "representing the Department of State, within whose province questions touching the physical well-being of the people fall, with the addition of members nominated by the medical corporations and others whose duty it would be not only to receive and apply the information derived from the anthropometric survey, and the register of sickness, but also to advise the government on all legislative and administrative points concerning public health in respect of which state interference might be expedient."

There can be no entirely effective Federal or state health administration which continues to ignore the physical facts of individual life and which does not concern itself with the conclusions derived from collective investigations concerning physical progress and physical well-being; yet, broadly speaking, in not even the most advanced civilized countries are efforts being made to first ascertain the true physical status of the population and the variations in health and growth from time to time, whether towards physical improvement or physical deterioration, as the case may be. Furthermore, and still more lamentable, is the fact that in not even the most advanced countries are such fragmentary data as exist intelligently utilized, but, quite to the contrary, are contemptuously disregarded as needless to the higher requirements of an intelligent policy of government resting upon the declared principle of general welfare.*

A beginning has fortunately been made in this country through the United States Children's Bureau to initiate a plan for the systematic measurement of children of pre-school age, subsequently, no doubt, to be followed by the introduction of systematic measurements of children during the teaching period from the primary grade to the university. It is true, of course, that vast numbers of children

* Some exceptionally valuable data on physical growth and development are included in the first three chapters of Prof. G. Stanley Hall's treatise on "Adolescence," New York, 1905.

* For additional observations of my own on this important question see article on "Some Vital Statistics of Children of School Age," the School Review, December, 1913; see also my address on the "Physical Care of Children," Medical Review of Reviews, April, 1916.

are being measured in school or out, and that equally vast numbers of measurements are made of young persons in industry, in the military service, etc. The lamentable fact, however, is that these measurements are, in the first place, crudely made; in the second, the prevailing standards of normal height and weight, chest expansion, etc., are seriously deficient in scientific accuracy; and in the third place, the ascertained deficiences, or departures from the normal are not made a matter of serious concern on the part of the school or the parents, or the medical profession, or all combined. Now, a modern state, resting its claims for preëminence upon a thoroughly healthy population, can be such only if standards of physical health and well-being are correctly ascertained and then properly applied to the correction of errors or deficiencies in growth or development in the very earliest stage of cognizable departures from the normal. It serves but a very limited, if any, purpose to ascertain such errors after they have become thoroughly established and possibly been incorporated in the mature development of the body. What is here said of the simple requirements of physical anthropology applies, of course, with much greater force to the broader needs of physical examinations. By physical examination is meant an amplified medical examination, which cannot be made properly by the physical examiner, governed too exclusively by the special requirements of physical anthropology. Unless, however, physicians are trained in making physical examinations they are just as likely to arrive at erroneous conclusions, most of all when, as is usually the case, the physical examination is made in a perfunctory manner and the judgment is guided by more or less misleading standards, as when medical conclusions are arrived at by physical anthropologists.* All such examinations, as, for illustration, those for defects of vision, hearing, dentition, spinal curvature, etc., require extreme care if latent tendencies towards future serious defects and possible deformities are to be disclosed. There is, therefore, the utmost urgency that this aspect of modern health administration should receive prior consideration if the future health of the nation is to rest upon a strictly scientific as well as thoroughly practical foundation.

The questions involved in this suggestion have received the serious attention of the Committee on Race in Relation to Disease (Civilian Records), of the National Research Council. That committee has recommended a standardized form of measurements and medical examination, with a due regard to the racial antecedents of the person examined,

* The Standard Child Labor Bill as recently introduced with slight modifications in West Virginia provides for "a certificate signed by a medical inspector of schools or public health officer stating that the child has been examined by him and in his opinion has reached the normal development of a child of its age, and is in sound health and physically able to be employed in the occupation in which the child intends to engage." With reference to proof of age a certificate is required, "signed by the public health physician or a public school physician, specifying what in the opinion of such physician is the physical age of the child," and that "such certificate shall show the height and weight of the child and other facts concerning its physical development revealed by examination and upon which the opinion of the physician as to the physical age of the child is based. In determining such physical age the physician shall require that the school record or the school census record showing the child's age be submitted as supplementary evidence." But as a matter of fact there are not, strictly speaking, as yet any trustworthy physical standards of age, growth or vocational fitness. Such standards can be developed only out of the data which are now being collected, but which will be seriously misleading unless the tabulation and analysis and resulting averages are with a due regard to the racial antecedents of the child, or, more precisely, the race of the father or the mother or the races of both.

It may be suggested here that the term nationality in investigations of this kind is grossly misleading and scientifically of no value. The nationality of a naturalized Italian is American; the nativity of an Italian, irrespective of citizenship, is *Italy;* the race of an Italian is with few exceptions the same as the nativity, but the race of an American-born child of Italian parentage is Italian, and not American. The most difficult complications arise in the correct racial differentiation of the immigrant stock from certain central European countries, where nativity and race are frequently confused. The term nationality should never be used in investigations of this kind.

chiefly, for the time being, limited to persons employed in industrial establishments. The committee clearly realized the importance of accuracy and thoroughness in the physical examination of adult applicants for employment, a sound physique being a prerequisite for the best possible results in industrial establishments. In other words, the same conclusions which apply to infants and children of pre-school age which are recognized by the Children's Bureau as applicable to children of school age and post-school age and enforced in many schools, public and private, and made mandatory in some by the use of school inspectors, etc., are equally applicable to vocational training and to vocational activity, but particularly so during the years of late adolescence or just before complete maturity has been attained. A national and local health administration, resting its beneficent activity upon such a basis, cannot but achieve measurably higher results than have been secured under the decidedly more restricted functions of public health and state medicine as followed at the present time.*

The second prerequisite for a rational and effective public health administration is *the accurate and complete registration of all serious illnesses*, whether in private practice or in institutions under medical supervision and control. What has properly been called the "wasted records of disease" constitute, by their non-use at the present time, an indictment of the public health authorities and the medical profession as indifferent to the most vital facts which concern national health and well-being. The conclusions drawn from mortality statistics are naturally of a very high order of intrinsic value, but after all they serve rather historical or retrospective purposes, and quite frequently the lessons drawn therefrom are no longer applicable to a possibly completely changed state of affairs. The statistics of communicable or transmissible diseases are frequently limited chiefly to the acute infectious diseases of infancy, as to which the enforcement of drastic quarantine regulations is least difficult. The reporting of such a disease as tuberculosis is still far from having attained even a reasonable degree of approximate accuracy, so that for practical purposes most of the data are useless and misleading. That much can be done in the direction of broadening the plan and scope of such disease reporting has been made evident by the gratifying results in the state of Mississippi, where trustworthy returns are now being made by over 90 per cent of the physicians throughout the state. The reluctance on the part of the medical profession and the unwillingness frequently shown to completely fill out certificates of communicable diseases and to promptly forward the required information to the central office of the state or local board of health are but further evidence of a failure on the part of the medical profession to clearly realize its public status and semi-official relations to the government. As perhaps the most conspicuous illustration of unwillingness or indifference in this respect mention may be made of the failure of a large number of physicians in practice in the Sacramento Valley of California to promptly and accurately report current cases of malaria at a time when the increasing frequency of the disease, in consequence of the extension of irrigation and rice-growing projects, constitutes a serious menace to the present and future health and welfare of the people of the

* In a collection of papers on Army Anthropometry and Medical Rejection Statistics (Newark, N. J., 1918, Prudential Press), I have brought together a considerable amount of useful information from American and foreign sources, not generally accessible. The address emphasizes the urgency of much more rigid conformity to strictly scientific requirements, if results of really practical and lasting value are to be secured.

state. Equally lamentable is the apathy on the part of the state health authorities to bring about the drastic enforcement of the official rules and regulations which require such reporting but which are often treated with official indifference little short of contempt.*

Objections will be raised to the suggestion that the reporting of serious diseases, including such, for illustration, as diseases of the heart and circulatory system, of the urinary system, of the respiratory system, all forms of tumors, etc., would impose a very considerable amount of additional clerical labor upon more or less overworked physicians in private practice, while, on the other hand, there would be the risk of making public information considered at law entirely confidential between patient and physician. The answer is that the physician would not be required to communicate the name of the person concerned, but only certain essential statistical facts such as age, race, occupation, locality, etc., together with the nature of the disease, the duration of the treatment and the results thereof, conforming, broadly speaking, to the practice which now prevails in private and public hospitals. The only reason why the term "serious disease" is used is that, for the present, no complete list of such diseases as would most urgently require reporting is offered, and to make it clear that there is no intention of imposing upon the medical profession the very considerable burden of reporting all trivial ailments, of slight statistical, medical or economic value. It is precisely on this ground that the most serious objections lie against the compulsory system of health insurance, in that no discrimination is exercised in the form of treatment and that the major portion of time, thought and expense is devoted to trivial and partly imaginary ailments, to the serious disadvantage of patients in urgent need of highly specialized skill, prolonged nursing care, etc. In medicine, as in everyday life, a choice must be made between that which is of major and that which is of minor importance. The same regrettable errors which underlie our public library management impair the practice of compulsory sickness insurance, in that in the former most of the public money is wasted on books or periodicals practically within the reach of any one, while the more costly works of reference, scientific periodicals, etc., urgently required by earnest students seeking to advance the interests of some one branch of science or another, are generally not available. Neither in Germany nor in England, under social insurance, are those who are most in need of thoroughly qualified medical or surgical skill, prolonged nursing care, surgical or other appliances, high-priced medicines, costly institutional treatment, radium, X-ray, etc., cared for as their condition most urgently demands.* For these and many other reasons it would not seem advisable to require the reporting of minor or trivial ailments such as constitute in everyday practice a large proportion of the cases, having neither much pathological nor sociological significance; but it is insisted that the more serious types of disease should be systematically and accurately reported, so that their respective degree of frequency occurrence may be known and thoroughly understood. No real progress can be made in public

* See in this connection the observations and data on the failure of the U. S. Public Health Service to secure complete returns of malaria morbidity through the coöperation of practicing physicians in the Southern States as set forth in my address on "Malaria in Peace and War," prepared for the National Committee on Malaria, Prudential Press, 1918.

* For an extended discussion of the more involved aspects of compulsory health insurance, see my address on "Facts and Fallacies of Compulsory Health Insurance," Newark, 1918, and a paper on "The Failure of German Compulsory Health Insurance—A War Revelation," read before the Association of Life Insurance Presidents, New York, December 6, 1913.

health, in the larger sense, until the essential facts of health and physical well-being are made available and practically applied by those qualified to do so.

The third fundamental principle of modern health administration is a thoroughly well worked out limited *state medical service*, including under that term, all of the medical services now rendered in connection with public institutions, poor-law establishments, schools, state and municipal dispensaries, clinics of all kinds, etc. The existing state medical service is already quite considerable and requires only to be amplified and reorganized on a more substantial and well considered plan. The new organization, however, must rest upon a totally different principle from that of the old one, and that is the clear recognition of the duty of the state to afford the best qualified medical and surgical service to all those who are in need thereof, even though they are unable to pay therefor the usual and not unreasonable charges common in everyday private practice. To overcome the difficulty of the stigma of apparent poor relief the state medical service should be scrupulously kept outside of any general poor relief administration, and, being supported by public taxation, conform in its essentials as a public utility to the same governing principles which apply to the use of public libraries, public schools, etc. Certain practical difficulties, no doubt, would arise at the outset of such a proposed state medical service, but it is the only alternative to the existing chaotic condition, which, in many respects, is in urgent need of radical reforms.

Dr. Hoffman's article will be concluded in the April number of the JOURNAL.

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ADJUSTMENTS IN HEALTH ADMINISTRATION FOR INDUSTRIAL DISEASES ON ACCOUNT OF THE WAR.

EMERY R. HAYHURST, PH. D., M. D.,
Assistant Professor of Hygiene, Ohio State University, Columbus.

Read before Sociological Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

I. THE PROBLEMS.

MOST of the war and peace problems are the application of certain well-known principles to expanded industries, to more people, and to different kinds of people. The first problem is that of endeavoring to keep all workers on the job so far as ability to work is concerned. The second problem is to adjust a continually increasing number of women, older people, and, in some instances, youths, to industries and processes which have been more or less foreign to them heretofore. The third problem is to down any idea that there should be any relaxation of sanitary regulations or public hygiene. The fourth problem is to prohibit undue fatigue—not by more study into the subject, for there is little time for research work at present, but by a strict application of the principles already developed, especially those in regard to hours of work, the limitation of overtime, the advantage of rest intervals, the necessity for proper food and enough of it, and of health working environment. The fifth problem is one ably stated by Levy at the last meeting of the State and Territorial Health Officer in June,—that of not only maintaining average vitality but of raising the average vitality. The sixth problem is to overcome the indifference which has possessed so many people in the midst of personal prosperity, lots of jobs, and the speed mania. The seventh and last

problem is to continue the spread of fundamental information calculated to save waste; in this case, as on the battlefield itself, human waste.

II. Expansion the Principal Adjustment.

While the condition of war discovered a few new situations in the matter of industrial hygiene and industrial diseases, the state of war served one great purpose—to uncover to the world the possibilities in administration and supervision of these subjects.

Industrial diseases have been more or less a feature in the work of some city and state health departments for several years—many years, in fact, in the case of Massachusetts. It is now only a matter of brief time before this subject becomes a feature of every public health office.

At the very time the services of these offices were most needed and as meager as were the facilities in the country at hand to cope with industrial diseases, those agencies engaged in this line of work became seriously curtailed by withdrawals of personnel to various forms of active service. The increased demand with the decreased facilities became apparent to the world at large when labor shortage demanded the highest efficiency of labor at hand. Now that Peace is declared that demand exists even more acutely, for problems even larger than fighting are at hand.

One of the first adjustments to meet the present situation, with the meager personnel, is to change from the work of new investigations, surveys and research to the immediate spread and application of knowledge already at hand.

III. An Example.

One establishment employing over 5,000 women in Ohio found that it could make timers for exploding shells at a certain rate of production provided room temperature was maintained at 70° F. and humidity 60 per cent. To more than make good, they overdid it. Temperature as high as 85° F. and humidity to 75 per cent were allowed. They found, however, that there was an unusual amount and type of sickness prevalent which threatened disaster to production altogether. After consultation with the State Health Department a reduction in working temperature and in humidity, which cost less to secure, resulted in a 10 per cent increase in production almost from the day the change took place, and in a marked decrease of absences and quittings as well as the disappearance of the peculiar health complaints which had previously obtained. In this way it can be shown through every industrial concern that production and health conservancy go hand in hand and that the presence of industrial health hazards, which are discoverable by systematic inspection, spells lessened production and more trouble with human machines.

IV. The Opportunity.

The shortage in man-power has resulted in new forms of economics. That which is at hand must be saved, and this point is so seriously recognized by industries that a willing ear is given to every plan proposed for conserving labor. Money is plentiful and much of it is readily forthcoming for the bettering of sanitation and the promotion of hygiene in all industries. Advantage should be taken of this situation and the proper plans devised for able assistance.

V. The Procedure.

I can suggest some methods of procedure. To the few who are in the field, I would say to do more in a wholesale way, by giving attention to whole industries as a class than by giving personal attention to a few establishments here and there; more office work and less field work; more

reached by letters or leaflets and less by personal visits. In order that all classes of society may be reached, education in the prevention of industrial diseases and in hygiology must be extended to schools; first, to intensive graduate training in short-term courses in medical and engineering schools; at the same time, introduction of these same subjects into undergraduate work at colleges and at high school and grammar schools. There should be, for some time, attention given only to principles and facts and little to theories. An immense amount of industrial hygiene is personal hygiene, and this feature must be made the subject of popularization among pupils and workers by every educational method devisable.

It is necessary to assist every properly established agency or organization which is already in the field. For the accident features and to some extent the health features, we have the National Safety Council and the American Museum of Safety. For the hygiene and sanitation features, we have the Federal Health Service, recently greatly expanded in this direction. We have also our own Association. Every state has its state health department. There are also the well-organized health departments in the larger cities, few of which have yet included the subject of industrial hygiene in their programs.

There must also be a more rapid extension of the idea of a selection of workers for different occupations, in much the same way as selections are made for those in the army service. The first step in selection is physical examinations. For those who do not pass "first call," and thereby become eligible to accept most any occupation there are numerous other occupations and callings. The principle of rehabilitation should be made to apply to the sick or injured worker as much as to the soldier.

VI. Distribution of Costs of Mal-Hygiene.

It is becoming more and more obvious that organized insurance against sickness among workers is just as much needed as similar insurance against accidents, and as much so for industrial workers as for troops.

VII. The Federal Health Service's Program.

We see that at this same session the United States Public Health Service is taking the lead in its "War Program," first published in Public Health Reports, September 27, 1918, in which Section 10 on "Industrial Medicine," Section 11 on "Railway Sanitation," Section 15 on "Health Standards," Section 16 on "Health Education," and Section 17 on "The Collection of Morbidity Reports," outline a definite plan for increasing the efficiency of the human factor in industry. We are going to see that the Public Health Service assumes a gradual extension of its activities, not only to the welfare of federal employees and industries contracting with the government, but to all industries necessary for the maintenance of national and local welfare.

VIII. Present Day Advantages.

In conclusion, I would say that as a result of the Great War, the world everywhere recognizes the wisdom and the merits of good hygiene and good sanitation, and that there are a thousand people willing to give ear to anything along this line to one a couple of years ago. Through the agencies mentioned, it is possible and necessary to push the knowledge already at hand, and this in a wholesale manner.

DEMOCRACY AND PUBLIC HEALTH ADMINISTRATION.*

CHARLES J. HASTINGS, M. D., C. M., L. R. C. P. I.

Address of the President, American Public Health Association, December 9, 1918.

(Concluded.)

OUR NATIONAL FITNESS.

The fit have had to be separated from the unfit. Consequently we have been taking an inventory of our physical assets, with results that have been amazing. From 50 to 75 per cent of our volunteers, draftees and conscripts have been found physically unfit for military service, and these have been for the most part the victims of preventable and curable diseases and physical defects.

Fifty thousand were rejected from your first draft on account of tuberculosis. These had all been engaged in active pursuits, the vast majority having no knowledge of the danger that was lurking within them. Government reports show that 66 per cent of the first million volunteers for the army and navy were rejected as physically unfit. It is true that the physical requirements were high, and were subsequently relaxed, yet they were not higher than they should be to ensure the physical soundness that our people are entitled to, and that in the interests of the nations should be maintained, whether it be for military or civil service.

In this connection, it is interesting to note that similar results are being found among the school children where a complete physical examination is made on entering the schools. Here approximately 50 per cent are found defective and have defects of such a character as to require them to be referred to their family physician or some hospital clinic for correction. To add to this tragedy which these examinations reveal of pre-war conditions, we find that there have been approximately seven millions of those who have been found fit, of the best man power of all nations, that have paid the extreme penalty, and probably an equal number permanently disabled.

What about the ravages of the invisible foes of the race? What about the conditions that are responsible for those that have been found unfit for active service? What about the conditions that are responsible for the physical defects in our children on entering school? According to the records of the registration areas of all the nations engaged in this war, there was, previous to the war, an annual mortality of more than 7,600,000 from preventable diseases, and no doubt quite as many who have survived the contest have been more or less handicapped as a consequence of their struggle for life. It must be apparent, moreover, that the percentage found in the registration areas is less than in the areas where there is no registration.

What are we doing to control these invisible foes?

Some effort has been made to safeguard the health of the people since prehistoric times, more particularly among the Egyptians. However, the Levitical Laws, as codified by Moses, constitute the first organized effort to apply the principles of hygiene. District health officers were appointed in Rome in 495 B. C. The Cloaca Maxima constructed in Rome centuries before Christ, and also their aqueducts, give evidence of their having recognized the necessity for sewage disposal and for the securing of their water supply from uncontaminated sources. However, it was not until 1847

*Reprints of this address may be secured by addressing the office of the JOURNAL.

A. D. that the first health officer was appointed in England. Think of this interregnum of over two thousand years.

This apparent suspension of public health activities was in a large measure due to superstition and doctrinal delusion of the Israelites, who regarded plagues and pestilence as visitations of divine wrath and this superstition has unfortunately been handed down through the centuries of the Christian era. It was this that Ruskin sarcastically referred to when he said, "Any regulations which tend to improve the health of the masses are viewed by them as an unwarranted interference with their vested rights in inevitable disease and death."

Attend almost any church burial service today, and you will hear the officiating parson read from the service: "The Lord giveth and the Lord taketh away, Blessed be the name of the Lord." In the light of modern knowledge, can you conceive of anything more libelous on the Almighty? If the church is determined to retain this form, why not change it sufficiently to make it consistent, and have it read, "The Lord giveth and the Municipality taketh away, Cursed be the name of the Municipality."

As an illustration of the inconsistency of this attitude, the mortality from typhoid fever on this continent has been reduced 75 per cent during the past ten years, and from tuberculosis it has been reduced practically 50 per cent within the past twenty-five years. This means that tens of thousands fewer are dying from these diseases alone every year than would be dying if the death-rate of twenty-five years ago obtained to-day, in which case, according to the burial service, the Almighty would be to blame for all these deaths.

It is important to note that in the very significant reduction of the general typhoid death-rate in thirty-five American cities in the past ten years, from 27.2 per hundred thousand to 6.7 per hundred thousand, the death-rate varied in these thirty-five cities from 56.4 to 1.7, this latter figure being for Chicago, which is the lowest of any city on the continent. This is a wonderful showing. Over 20,000 fewer people died from typhoid last year than would have died if the death-rate of 1907 had obtained. Obviously then, we have practically bottled up in our filters, Admiral Typhosus, with his entire navy, and should one of them escape, he is promptly gassed with chlorine.

While this is only one disease, yet it demonstrates the possibilities of preventive medicine, and what can be done by an intelligent application of the knowledge we now possess. It places the blame where it belongs.

I trust that the time is not far distant when if an epidemic of typhoid fever breaks out in any municipality, that can be traced either to the water supply or the milk supply, or any other source that the municipality is responsible for, that those affected will have legal claims for damages, and that our Federal governments will indict such municipalities for manslaughter.

In view of the unqualified success of anti-typhoid vaccine, it would seem that in any municipality where the water and milk are not made at all times safe, anti-typhoid vaccination should be imperative.

However, even if all preventable diseases were controlled (and their control will require much more intensive work than has been done in the past) we would then be doing but a fraction of the work of public health administration as we now see it, inasmuch as it means the development of a fitter race, the conservation of man power. Therefore departments of public health are essentially nation building.

It was a vision of this three quarters of a century ago that prompted Disraeli in the British House of Commons to say that "public health is the foundation on which rests the happiness of the people and the strength of the nation," and that "the first duty of a statesman is the care of the public health."

Oliver Wendell Holmes once said that to produce a perfect gentleman you require to begin with his great-grandparents. To produce a fitter race, we must begin with the germ plasm from which they are developed. Eugenists tell us that the moment conception takes place the door of parental gifts is closed. In other words, the moment conception takes place, the possibilities of eugenics ends. Obviously then, if we are going to have, and if we are going to develop a fit race, we must have a complete chain of activities. There must not be a missing link. Where eugenics ends, eugenics must begin. Or, as Galton expressed it, "Where nature ends, nurture begins," and it is only by combining both efficiently that we can hope to develop the fittest race.

While I have a profound respect for the school of eugenics, yet we must remember that we have no say as regards the kind of man timber out of which our ancestors were made, but we have a say, and are responsible for the man timber out of which our descendants will be fashioned.

Pre-Natal Care.

Every child has a right to be well born, born of parents who are physically and mentally sound. That is to say, they should develop from a germ plasm which is free from any taint that might militate against them. If our organized campaign against the still unduly high infant death-rate is to be efficient, obviously it must begin just after conception has taken place. The necessity for this is apparent when we realize that more than one third of the infants that die in the first year, die during the first month, and from 60 to 70 per cent of these die within the first week. Consequently, if these lives are to be saved, it must be by pre-natal care. Here the grim monster reaps his harvest, ofttimes by a dual action, directed against both the mother and child. If we would save the baby, we must save and protect the baby's best friend,—its mother. There is no other resort that the infant has or can appeal to comparable to the maternal instinct. With no language but a cry, the infant when in distress promptly appeals in this way, which appeal, none but the mother can properly interpret.

It is a well-recognized fact that the infant nursed at the mother's breast has ten chances to one for life and efficient development that the artificially fed child has. Consequently our pre-natal care must embrace not only the efficient piloting of the mother through her pregnancy and confinement, but also we must see that as far as can be we make it possible for her to nurse her baby.

There is probably no greater reflection on our intelligence as a profession than the fact that while the death-rate from typhoid fever and tuberculosis on this continent has been reduced by more than half in the past twenty-five years, and that there has also been a marked decrease in all other preventable diseases, yet there has been no appreciable decrease during the same time in the deaths from diseases due to pregnancy and from conditions accompanying labor. This has been shown to be largely the result of ignorance on the part of patients and lack of efficient training on the part of the physicians, and their neglect to turn to practical account the knowledge which they possess.

Williams has pointed out the fact that

in the majority of medical colleges in the United States, instruction in obstetrics is sadly neglected and that consequently the young graduates turned out are incapable of handling any but normal cases, and they only too often failed to intelligently apply the principles of antisepsis and asepsis in this practice.

It is almost inconceivable in the light of modern knowledge that, according to a report recently issued by the Children's Bureau at Washington, pregnancy and childbirth on this continent cause more deaths among women between fifteen and forty-four years of age than any other disease excepting tuberculosis. Basing our calculations on the records of the registration areas of the United States and Canada, there is approximately an annual mortality of 16,800 women due to childbirth, and 7,500 of these deaths are due to so-called child bed fever. This is undoubtedly a very conservative estimate. These figures cannot be properly appreciated unless we present them in a comparative way. Let us compare them with the death-rates from other preventable diseases. For instance in 1913, the death-rate from diseases due to pregnancy and confinement was 15.8 per hundred thousand population, which of course includes all ages and both sexes, and the death-rate from puerperal septicemia or child bed fever was 7.2. In the same year the typhoid death-rate was 17.9 per hundred thousand and the death-rate from diphtheria and croup 18.8. In the light of modern knowledge of the principles of antiseptic surgery and its application to obstetrical practice, it is nothing short of criminal that such a high death-rate should continue.

With efficient pre-natal care, the mother can be guided not only in regard to the necessary precautions to be observed regarding proper nutrition, clothing, exercise, but also she can have explained to her the danger signals as regards complications: she can be advised to consult a physician early, to submit samples of urine frequently for testing with reference to the activities of the kidneys; the advisability of early examination, and examination again about the seventh month, to determine whether or not any abnormal conditions exist that might militate against her at full time of gestation.

The fact that the infant depends entirely on the mother's blood for nutrition, makes it all the more imperative that the blood be kept in the best possible condition, which can only be accomplished by the efficient safe-guarding of the mother's health, in piloting her through her pregnancy. The extreme importance of her nursing her infant should be emphasized. Where efficient pre-natal care has been established, there has been a marked increase in the number of mothers nursing their babies, and the infant mortality during the first month has been reduced more than 50 per cent.

Obviously then, pre-natal care will not only secure a better and more vigorous race of infants, to start life with, but will also tend to improve obstetrical service and thereby save the lives of many mothers that are unnecessarily sacrificed at present.

Furthermore, pre-natal care affords a starting point for the nurse to educate the mother in the intelligent care and feeding of her baby when it arrives. The mothers are instructed in their homes in regard to the care of the infants after their arrival. They are required to bring their infants, as soon as they are old enough, to the well baby clinics, which are established in the various districts of our cities, where the babies are examined by physicians specializing in the care and feeding of infants, assisted by the public health nurses. They are weighed and measured, in order to determine whether

or not their development is normal. Any physical defects are recognized and instructions are given regarding the correction of them.

The next link in this chain of public health activities is the care and supervision of the child in the pre-school age. Probably the most valuable result of medical inspection of schools has been the revelation of the fact that a large percentage of the children on entering the public schools are suffering from physical defects. This has been demonstrated in all cities where the medical service in the schools requires the complete physical examination of every child on entering school. Experience has taught that a large number of children, healthy in all respects at birth, become, within five years, physically defective, and consequently municipalities, through their boards of education and departments of health, are required, at no small cost, to restore these children as far as possible to their original state.

Sir George Newman, in a recent report, has drawn attention to the efforts on the part of educationalists towards a higher standard of physical development, and in this connection he emphasizes the great importance of the early supervision of the homes. By this means, many conditions that are irreparable by the time the child reaches school, could be prevented. While much has been done as regards pre-natal care and the care of the new-born infant and in medical inspection of school children, little or no organized effort has been made as regards the supervision of the child in this intervening age. Hence, a most important field of social and biological study has been for the most part overlooked.

Pre-School Age.

When one considers the plastic character of life at ages say between one and six years, one readily realizes the importance of efficient supervision during this period. Fortunately this has been recognized by some administrators of public health, who by organized effort have stepped into the breach and forged the missing link and welded it into the chain.

The pre-natal care of the child can be satisfactorily linked up with the care of the infant, through the organization of well baby clinics, also in the various day nurseries and other institutions where children are kept during the pre-school age.

The fact that, on a complete examination, approximately 50 per cent of all children on entering school show signs of some physical defects (exclusive of dental defects) of sufficient importance to require medical care, points to the absolute necessity of careful supervision during this period of the child's development.

Before the child leaves school he again undergoes a complete physical examination, which serves a double purpose; first, it serves as a guide to the boy or girl in regard to any physical weaknesses that they may have, in order that they might endeavor by all possible means to reinforce these weaknesses, and secondly, it helps them to determine the vocation in life for which they are best suited.

Industrial Hygiene.

The next link in the activities is that of a well-organized division of industrial hygiene. This has been another lamentably neglected branch of preventive medicine. Industrial diseases are for the most part preventable. Industrial hygiene is a part and parcel of community hygiene. Therefore, it must obviously come under the régime of departments of public health and local boards of health in all municipalities. We have safe-guarded the child from conception until it enters the industrial world. Why should we stop then? We must follow on and see

that the industries in which he may engage are so conducted as not to be prejudicial to his health.

When we refer to industrial hygiene and industrial diseases, we embrace, first, the results of the general sanitary conditions of factories, workshops, workhouses, warehouses,—badly lighted, overheated, improperly ventilated, ofttimes with dust-laden atmosphere. The ill effects of fatigue are also taken into consideration. All of these tend to lower the vitality and thereby reduce the resisting powers of the body, rendering the individual in many respects more susceptible to diseases to which he may be daily exposed, consequent upon the close contact with probably one suffering from a mild attack of tuberculosis or one convalescing from some communicable disease, who is still a chronic carrier. Furthermore, such environments, if tolerated, only hasten the fatal issue to those unfortunates who are already the victims of the aforesaid disease, and who, through ignorance of their condition, or the danger of their environment, are by dint of circumstances compelled to face the inevitable.

Then, of course, we have added to this the morbid conditions consequent upon the occupation or trade, giving rise to specific diseases, such as lead poisoning, phosphorous poisoning, arsenical poisoning, mercurial poisoning, brass poisoning, and poisoning from the fumes of mercurial acids and wood alcohol, workers in compressed air, and so forth.

Departments of health will find that employers of labor, once educated along these lines, as to the importance of them, will readily coöperate. Employers of labor in Toronto have spent tens of thousands of dollars in installing the necessary equipment for the control of trade dusts, and for the better ventilation of their industries, knowing as they do, that improper ventilation, with the employees exposed to inhaling trade dust, can easily cut down the percentage of efficiency of all their employees, to say nothing of the loss of time through sickness. No employer of labor can afford to pay ten out of every one hundred of his employees for doing nothing, and that is what only 90 per cent efficiency really means. Sir Thomas Olliver says that industrial diseases cost this continent more than $779,000,000 annually.

Then we have the degenerative diseases of middle life, premature diseases of the heart and arteries, kidneys and liver, and the thousands of lives that are sacrificed annually to cancer, which, if recognized early, by preference in the pre-cancer stage, or even early in the cancerous stage, and promptly operated on, a large percentage of these lives could be saved.

Then we have the neglect of the mental condition of our children and of our adults. Mental hygiene is also essentially a part of the general community hygiene, and when we use the term "hygiene," we should use it in the broadest sense, as being synonymous with health. The maintaining of the mind in a healthy condition is surely as important as the maintaining of the body in a healthy condition, and is as deserving of guidance. Obviously then, linked up with our public health service should be a division of psychiatry or mental hygiene.

Education.

And last, and yet the most important of all activities of a department of health, is education, inasmuch as probably 99 per cent of the permanent efficiency of public health administration depends on the efficiency of our educational campaigns.

We must in the first place educate the future governors, the future legislators of our community, the future parents of our country, the medical profession, the

nursing profession, the clergy and the legal profession. For the generation to come there is only one efficient way and that is to begin in our schools. Make instructions in hygiene and public health an organized part of the curriculum of every public school, high school and college.

While we can accomplish much by our public health bulletin, newspaper talks, public addresses, health leaflets, etc., yet we must bear in mind that there are thousands in all of our cities that cannot read. There are thousands of those who can read that do not read, and there are thousands of those who do read, that do not think. We are confronted by the lamentable fact that the knowledge essential for our people to be in possession of, as regards disease-producing germs and the ways and means by which they gain access to the body, has been kept for the most part in past years within the precincts of universities and laboratories. This, to be of practical value, must be democratized. It must be translated into a language that will be understood by the man on the street and by the housewife in the humblest home. This can be most efficiently done through the medium of the public health nurse, who meets the parents with their children in the well baby clinics, in the hospital clinics, in the tuberculosis clinics and in the public and parochial schools, and visits thousands of homes in our cities every day. In her conversation with the mothers in the homes, she will be listened to and can make these facts so plain "that the wayfaring man or woman, though a fool, need not err therein."

We are sometimes afraid of repeating things too frequently, but any one who has had any experience along educational lines, must have been fully impressed with the importance of repeating and repeating a number of times, over and over again. This has been the experience all down through the ages. Occasionally we have had outstanding illustrations of this. When Cobden was endeavoring to have the corn laws repealed in Great Britain, after repeated efforts, in a spirit of indignation, he said that he had come to the conclusion that the only way to get anything through the heads of the British people was to repeat it over and over again, in just a little different language. A few years ago when the subject of education was under consideration at the New York Academy of Medicine, Professor Sir William Osler said that in his judgment the secret of education was reiteration, reiteration, reiteration, to which one of his colleagues added, "Without irritation." As I have quoted Cobden and Osler before, you see I am consistent in recommending reiteration. It is certainly an enviable accomplishment to be able to reiterate sufficiently often to leave a permanent impression on the brains of our fellow-citizens, without causing irritation.

While the foregoing represent the activities of a well-organized department of health, yet there are probably not a half dozen cities so organized on this continent. We shall never obtain the results that our people are entitled to, and that the principles of true democracy dictate, until this kind of organization is in operation in every municipality.

Every citizen on this continent is entitled to this protection and guidance and he is not having justice without it.

It must be apparent then, if this is going to be accomplished, if our activities are to reach into every state and municipality on the continent, that all powers and authority for governing this work must be centralized. The greatest determining factor in our winning out in the recent war was, by general consent, the appointment of a Generalissimo. What every nation requires in its public

health administration, in its organized battle against the invisible foes of the race, is a Foch. We require the centralization of authority. Whether that be a public health service, a local government board, a department of health, a ministry of health or a secretary of health, it matters little, but all authority should be centralized under one department, if we are going to have efficient results. After all these years of warfare against these invisible foes, we have little to boast of beyond a pitched battle. Every human body may be a battle field against these invisible foes. Consequently, every individual must be a trained fighter, and though we march apart, we must fight together under one command.

In the foregoing I have endeavored to point out the principal rocks and shoals upon which administrators of public health are required to place the beacon lights to guard our people from mental, moral and physical shipwreck.

TAKING THE BOARD OF HEALTH TO THE PEOPLE.

B. L. Arms, M. D.,
Chief of Division of Diagnostic Laboratories, Florida State Board of Health, Jacksonville, Fla.

Read before the Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 9, 1918.

THAT the State Board of Health is but a name to many citizens is a well known fact. Boards of health have many ways of reaching the people, prominent among which are the various sub-departments such as Bureau of Engineering, Statistics, Child Welfare, Epidemiology and Laboratories and the district or county health officers, etc. Each of these endeavors to be as useful as possible to all sections of the state. In many states there are meetings to which health officers are called in order that the problems of each may be discussed and a more general "get together" movement established and any state that has not inaugurated such conferences has missed a great aid in securing the coöperation of these officials.

In spite of all that may be sent out from the office of the health department there is a woful lack of understanding on the part not only of the citizens but of the local health officers and physicians as well, of what the State Health Department is willing and prepared to do for them.

It is not the purpose of this paper to discuss all the ways of carrying the board of health to the people but to discuss a few ways connected with the laboratory side of the question.

Florida is, as most of you know, a state of peculiar shape and it may surprise some of you to be told that it is the second largest state east of the Mississippi.

The main office and the central laboratory of the department are located at Jacksonville, the largest city, and this is connected by rail with all parts of the state. In spite of this many sections are a long distance from headquarters. The state is divided into eight districts each having a full time health officer.

To give some idea of distance in Florida, which is not classed as one of the large states, let me tell you that from Key West to Pensacola by rail it is 891 miles or to divide it in another way, Key West is 522 miles down the east coast from Jacksonville and Pensacola is 369 miles west.

There are no railways connecting the east and west coasts excepting in the northern third of the state, thus you will

readily see that a single laboratory can not give as prompt service as is desirable. Branch laboratories have therefore been established at Tampa on the west coast, 212 miles from Jacksonville; at Pensacola in West Florida and at Miami, 366 miles down the east coast.

In spite of the laboratories so located that they are accessible to all parts of the state it was felt that many of the citizens did not realize that they were their laboratories and that the state desired to extend the work of the board of health to all.

Most states are prepared to assist whenever there is an outbreak of disease in any locality and many states have undertaken intensive hookworm and malaria campaigns in localities where these diseases were prevalent. However, our first attempt to take the laboratory to the people was not under these conditions.

Dr. W. H. Cox, State Health Officer, and the writer had been evolving a plan for extension work when one day a letter came from a social service worker in one of the east coast counties that she was going to visit the town of Cocoa, 173 miles south of Jacksonville, and asked for some containers in which to submit specimen of feces to be examined for hookworm infection. This seemed a favorable opportunity for our plan and we proposed instead of sending the containers to be returned to Jacksonville that the containers be sent to be returned to some central point and that they be examined there. The plan appealed to Miss Malin, the worker mentioned above, and she organized the women thus securing coöperation. Examinations were made at a schoolhouse and although the people thought that there was no hookworm infection in their locality we found from 118 stools 15 showing hookworm ova and three with ova of other intestinal parasites. The examinations extended over two and one half days, and the last morning there was a meeting at which seventy citizens were present. The results were made known and there was a general discussion of hookworm infection and soil pollution and of the work of the board of health and the desire to make it of value to the citizens in all parts of the state. It was very gratifying to be able to report on my return that arrangements had been made before I left Cocoa to have every case treated.

The personal interest of those who were treated, and their families, was gratifying and its outcome, which is of great importance as showing an appreciation of the advantages offered, has been the increased use of the laboratory, for from July 24 to October 1 there were more than four times as many specimens from Cocoa as from January 1 to July 22 and also a notable increase from the surrounding localities.

It is the intention of the board of health to extend the work not only along this but many other lines as well. It is not only that specimens are examined but the examination is made on the spot, and by explanation cause and effect are brought to the attention not only of the adults but the children, and when the children get thoroughly interested they are a potent factor in arousing the interest of their parents.

We hope to be able next year to report results from many localities along this and other lines, including malarial examinations and the supervision of milk supplies.

When all portions of the State can be brought to realize that the State Board of Health and its several branches has a direct interest in their particular locality especially if it is hundreds of miles from headquarters then we may expect and can also secure the coöperation of the people from all over the State.

THE SUPPLY OF PHARMACEUTICALS AND MEDICINES IN WAR TIMES; ITS IMPORTANCE AND DANGERS.

CHARLES H. LAWALL, PH. M.,
Dean of the Philadelphia College of Pharmacy.

Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

A FEW months after the outbreak of the World War, the visible supplies of such chemicals as phenol and potassium permanganate and of such drugs as belladonna and dandelion, began to shrink, and prices began to soar correspondingly.

The attitude of the pharmaceutical and chemical manufacturers was somewhat indifferent at this time, except as to present needs. Speculative tendencies were manifested but no attempt was made to provide means for supplying future demands, should the condition of shortage continue.

When, however, the advent of trench warfare in the fall and winter of 1914, and the consequent small gains by either side brought a realization of the probability of the war lasting for several years, a marked change occurred.

For the first time in our industrial history, there was brought forcibly home to American manufacturers the extent of their dependence upon European sources of supply for many chemicals and drugs which could be produced here if necessary.

There was an immediate and intense development of activity along the lines of providing for both present and future needs of substances which had hitherto played but a small part in American manufacturing. It is neither necessary nor advisable to give more than a synoptical survey of the situation and point out the more important features.

Under the general subject heading of this article may be included:—

1. Crude drugs.
2. Chemicals.
3. Biological preparations.
4. Pharmaceuticals.

Crude Drugs: In the matter of crude drugs there was a serious shortage during the first several years, owing to the fact that many of the practical problems of drug cultivation had not hitherto been worked out. Notable successes were recorded in the matter of cultivating such valuable and necessary drugs as belladonna and digitalis, and the quality of American grown supplies of these and similar drugs has never been equalled by drugs previously imported from Europe.

In the case of a number of drugs the cultivation was not possible. Some of these, as opium, asafetida, etc., have remained scarce and high in price. With others, such as scammony and styrax, equivalent drugs were made use of, as of Mexican scammony for the former and American styrax for the latter. While neither of these substitute drugs is absolutely identical with the one replaced, the therapeutic properties are close enough to satisfy the majority of their users.

Chemicals: One of the first problems which was successfully solved in the matter of chemicals, was that of the phenol supply which was taken care of within a few months. As an example of the magnitude of this one factor it may be mentioned that prior to the outbreak of the war no synthetic phenol was produced in America. In 1917 there were fifteen plants established with a combined output of over sixty million pounds annually. Most of this, of course, was used in the manufacture of trinitrophenol, an explosive.

Much of the American chemical development, of course, has been along lines directly connected with the manufacture

of explosives and not of chemicals used for medicinal purposes, but many of these have also been taken care of as side issues, and the great "after the war" problem will be to find an outlet for the output of many plants which have been looking after explosives first and medicinal chemicals last. Much of this energy will be devoted to the dye industry which is developing rapidly.

One of the developments which is still in progress is that of American potash. Many potassium salts are used in medicine, although most of the output is needed for the fertilizer industry. The American sources of potash are kelp-ash, by-products in cement mills and pig iron blast furnaces and in some instances rocks and clays. Whether these sources can survive German competition after the war remains to be seen, as in that country are found natural deposits of soluble potassium salts in a comparatively pure state.

One of the most interesting phases of the medicinal chemical situation is the success which has attended the manufacture in America of articles formerly protected by German patent. These patents were taken over as contraband of war and American manufacturers were permitted to use them under license. The products were sold under names selected by the Federal Trade Commission. Thus salvarsan became arsphenamine; neosalvarsan became neoarsphenamine; veronal became barbital; novocaine became procaine and atophan became phenyl-cinchoninic acid. In the case of arsphenamine it is stated by numerous hospital authorities that the American made product is superior in every way to the former salvarsan.

One of the interesting statements that has been made in connection with many German patents, which are now being made use of in America, is that in some instances the patent is unworkable because essential steps or necessary information have been left out of the published descriptions which were evidently intended to mislead. The success of this form of Hun cunning has been on a par with the success of attempts to render the interned vessels unserviceable.

Biological Preparation: In the field of serums and vaccines, so important in modern preventive and curative medicine, the development was marvelous. Tetanus and typhoid, which were so prevalent at the beginning of the war, were quickly stamped out by routine methods of inoculation and many other diseases have been successfully combated by the use of biological preparations. The immensity of the development of this line of work may be appreciated when it is learned that some of the vaccines and serums, which had in normal times been produced to the extent of a few thousands of packages in a year, in the first year of the war were ordered in quantities of millions of packages.

Great and permanent progress has been made along these lines and the development will doubtless continue with the object in view of stamping out many diseases at home with the same degree of effectiveness that has been noted in the army, where the death-rate of some diseases has been held down to a figure far below that observed under the most favorable conditions of civil life.

Pharmaceuticals: In the case of pharmaceutical preparations in general, there has not been so much of a development as there has been an attempt to maintain the *status quo ante*.

It seemed probable at one time that extreme conservation measures would be needed in such substances as sugar, alcohol and glycerin, but the point was never reached where it became necessary (as was done in Great Britain) to offi-

cially change the standards of articles recognized in the United States Pharmacopoeia and National Formulary.

Some independent attempts were doubtless made to effect savings in expensive ingredients in articles not subject to official standardization, and food and drug officials were compelled to keep a sharp watch to prevent adulteration under the name of conservation.

There was a largely increased use of antiseptic preparations and ampuls of iodin solution were prepared by the million for the soldiers' first aid packets and thousands of gallons of the neutral form of sodium hypochlorite solution, known as Carel-Dakin solution, have been used in hospital practice.

The war has certainly brought American manufacturers to a complete realization of their former heedless methods, and if the newly developed American chemical industry is properly protected, as it should be, we will be independent of European sources of supply to an extent that would have seemed impossible to the most optimistic prophet of pre-war times. In the matter of biologicals, American manufacturers have achieved what is believed to be a permanent supremacy. In the matter of crude drugs great progress has been made, but only along limited lines, and the trade will welcome the resumption of traffic with portions of the world which have been cut off for several years.

The danger in the near future is that the progress which has been made along the lines indicated will be almost entirely wiped out by a reversion to the former plan of buying in the cheapest market. With the present high prices American development and progress will continue, but it must be clearly understood that some degree of protection must be afforded these industries for a time at least, in order that they may not be forced to enter into competition with what will soon be a mad race for markets at any price.

STERILIZATION OF BOTTLES FOR PASTEURIZED MILK.

MARION B. HOPKINS, PH. D., AND MISS MARY L. KELLY,
Health Department, Baltimore, Md.

Read before Laboratory Section, American Public Health Association, at Chicago, Ill., December 8-12, 1918.

THE Baltimore Milk Pasteurization Ordinance, which went into effect about a year ago, in addition to requiring the proper pasteurization of practically all milk sold in the city, also requires that every bottle or other container into which milk is placed shall be sterilized. The Bureau of Food and Dairy Inspection has met with difficulty in enforcing this latter provision of the law. The difficulty has not been caused by lack of equipment (because every dairy has been compelled to install a satisfactory bottle sterilizer) and not entirely by wilful neglect on the part of the dealers; but in large measure it has been due to ignorance and lack of understanding on the part of dealers. Inspectors found in a large number of cases that the operator of the sterilizer considered that a bottle had been sterilized when a cloud of steam was injected into it, no matter what the temperature of the steam and no matter what the temperature to which the bottle was heated. The operator did not understand that it was the heat which killed bacteria in the bottle. Even in plants of large dairies, where hydraulic washing machines had been installed at considerable expense, it was frequently found that

operators failed to open steam valves, and bottles came out of the machines cold. Add to such ignorance and negligence on the part of the operators the desire of the dealer to keep his coal bill as low as possible and the difficult task of enforcing a bottle sterilization law in a city with a large number of milk plants is very obvious. We have come to the conclusion in Baltimore that a bacteriological control of bottle sterilization by the Health Department ranks in importance with bacteriological control of milk.

following are the results of the examinations of bottles collected from November 8th to the 27th from twenty-three of the milk plants of Baltimore:

In general it has been observed that those dairies which have a low bacterial content in their milk properly sterilize their bottles. This is not always the case, as there are other factors, such as proper pasteurization and proper refrigeration, which, of course, have more influence upon the actual number of bacteria than the condition of the bottle. However, as

Lab. No. of Dairy	Bacteria Per Bottle		Lab. No. of Dairy	Bacteria Per Bottle	
	1st Bottle	2nd Bottle		1st Bottle	2nd Bottle
1	120,000	12,000	13	sterile	5,000
2	600,000	5,300,000	14	20,000	2,000
3	sterile*	sterile	15	sterile	60,000
4	sterile	25,000,000	16	60,000	7,200,000
5	5,000	3,300	17	20,000	2,000
6	20,000	18,000	18	sterile	7,000
7	80,000	6,000	19	250,000	300,000
8	40,000,000	1,000	20	Spreader	2,000
9	300,000,000	23,000,000	21	150,000	2,000
10	50,000	6,000	22	60,000	7,000
11	sterile	sterile	23	2,000	90,000
12	sterile	4,000,000			

* Sterile means less than 100 bacteria per bottle.

After examining a large number of supposedly sterilized bottles from most of the pasteurization plants and finding that these bottles contained from 300 to 160,000,000 bacteria per bottle, the examination of bottles from all plants was adopted as routine work. An inspector collects the bottles from the milk plants, caps them (whenever possible by machine) and delivers them to the bacteriologist who rinses them with one hundred cubic centimeters of sterile water and makes a bacteriological count of this water. The

the bottles come from thousands of homes, the possibility of the introduction of pathogenic organisms by unsterilized bottles seems to us as great a danger as the possibility of the introduction of such organisms before milk is pasteurized.

We are now comparing the average bacterial count of a large number of samples from the empty bottles with the Levy rating of the milk from the various pasteurizing plants and shall make a later report upon this phase of the subject.

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Don't Forget—New Orleans—October 6–9.

RECONSTRUCTION AND THE CHILD.

S. JOSEPHINE BAKER, M. D., D. P. H.,
Director, Bureau of Child Hygiene, Department of Health, New York City.

Read before Public Health Administration Section, American Public Health Association at Chicago, Ill., December 11, 1918.

THE sudden ending of the war and the changes in our national life which are coming so rapidly as a result of peace, have made it essential that we turn our attention to the vital problems of reconstruction as they affect the welfare of our country. Foremost among these problems stands that of the child.

The serious effect of this war upon children has been frankly apparent in the belligerent countries of Europe. We do not seem to appreciate fully the effect of its destructive tendencies in regard to child life in the United States which, while perhaps more subtle in form, have been none the less widespread and serious. Our own participation in the war was for so short a time that we may perhaps be forgiven for having devoted almost all our energies to the proper equipment and maintenance of our armies. It was essential that Europe should have taken this attitude during the first year of the war, and it was not until well into the second year that our Allies began to pay attention to the devastation that was being wrought in their child population. Since that time they have made efforts at child conservation far in advance of any previous time.

In the United States our sympathies have been greatly aroused by the sufferings of the children of France, Belgium and Italy. We have watched with keen interest the work that has been done in those countries and in England to care for the rising generation. We have cooperated with them to the fullest extent of our ability and have sent them not only our workers but also our sympathy and our money. Anything less would have been inconceivable on our part and it is right and proper that we should continue to help the children of Europe. Yet, in our anxiety to meet what seemed an emergent situation abroad, we have, I think, failed to realize fully that much the same influences were at work in our own country, undermining the health of our children who constitute one-fifth of our population.

It is a matter of historical fact, as well as present knowledge, that during any war no part of the civilian population suffers so severely as do the children and this suffering and reaction seem to be in inverse proportion to their age. In this country the increase in the rate of wages has not kept pace with the increase in the price of food. In addition to the regular conservation of food which we all have been asked to practice, there has been in the families of a large part of our population a forced deprivation of many types of nourishing food. This has left its mark in the undernourished bodies of many of our children. General reports throughout the country have shown that undernourishment in children has increased rapidly during the last four years. Up to 1914 it had remained practically stationary for some time. When we began to ship food abroad and prices began to increase in this country, it was the children and not the adult members of our population who were first to feel the effects. In 1914 in New York City 5 per cent of the children of school age were undernourished. In 1917 21 per cent showed such definite signs of malnutrition as to demand immediate attention. Wherever the subject has been given se-

rious thought, whether in cities or rural communities, much the same conditions have been found to exist. During the past year there has been an attempt to deal with this situation by expanding the school lunch system and by spreading broadcast information essential to a better distribution of the budget as far as foods are concerned, but these efforts have been sporadic and isolated.

We are only beginning to get reports regarding the results of women in industry as far as it affects infant life. Even without exact statistics, however, we must consider that many women have gone into industry before marriage, some have worked during the period of pregnancy and some while their children were still infants. This enormous change in the habits and status of women cannot fail to have an effect upon child life. Left unregulated, it may indeed be a menace to our future welfare. It is possible, however, under proper regulation and control, for woman to take her place in industry with entire safety. At the present time, however, we are in a transitional stage and the employment of so many women is undoubtedly one of the reasons why, during the past year, we have had an increase in our infant death-rate from congenital diseases. It is possible also that the same tendency, implying as it does a certain degree of neglect, may be responsible to an appreciable extent for the high infant death-rate from respiratory diseases. The increased cost of milk has had a definitely bad effect on the health of the child of pre-school age. We all acknowledge that milk is an essential food for the growing child and that nothing else can take its place, yet it is rapidly becoming an almost unobtainable luxury for the majority of our children past infancy. It is not enough to say that economic conditions cause this increase in price. Children must have milk and unless a satisfactory solution of this problem can be reached soon, it is probable that we must seriously consider municipal control of the production and distribution of milk.

Now that the vast problems of reconstruction are facing us, it would seem to be time to develop a broad program for conservation of child life in this country. Something over one hundred years ago, it was determined that if this republic was to endure, its people must be educated, and compulsory education became part of the law of the land. So thorough has been the development of the public school system that it is estimated that at the present time in the United States only 7 per cent of the people are illiterate. No such program for the conservation of health has ever been promulgated, but when we face the facts of our excessive infant mortality, the high death-rate of children under five years of age, the knowledge that 75 per cent of the children of school age have physical defects which might be prevented or easily remedied, and our latest information which shows that rejections for physical disability vary from 40 per cent in the draft to from 70 to 78 per cent in the navy and army respectively, we may reasonably demand that we have a program of public health which is as widespread and universal as our program of public education. Undernourishment is just as great a menace to the future of the country as is illiteracy. Dr. Hamill has stated that the question as to who won this war will be answered twenty or thirty years from today and that, naturally, it will be the country that so maintains the nutrition of its people as to yield the highest degree of efficiency and which most nearly maintains its rate of increase.

In a certain sense the future of a country depends primarily upon the health of its citizens. This is true with particular emphasis in regard to children. The

vitality and virility of the people of a nation stand at the foundation of national progress and the health and welfare of the children are the factors which always determine the vigor and stability of a race. We can justify this war only if out of it comes a better world and the determination of the type of world we will have rests largely upon the mental, moral and physical health of the children of this and the next succeeding generations.

The problem of the health and welfare of children differs in a fundamental aspect from a similar problem applied to adults. In the latter, we may reasonably expect coöperation on the part of the people with whom we are dealing. Children, however are the inarticulate fifth of our population. They are unable to express for themselves their desires or their needs. Whatever may be done for them must be carried out by others than themselves. They are the victims of their own inability to voice their demands. Our responsibility toward them is all the greater because of their helplessness and we are committed all the more deeply to helping them.

It has been traditional, in this country at least, that human life is our cheapest possession. It has always been more difficult for us to part with our property than with our lives. The small ratio of our national and local budgets which is apportioned to the health authorities has been a disgrace. We have always been willing to spend huge amounts of money to conserve property, but it has always been difficult for us to obtain even a small amount of money to conserve life. One may well wonder whether, if our first contribution to this war had had to be a forcible draft on our wealth, it would have been acceded to as cheerfully and as wholeheartedly as was the forcible draft of our young men. The war has taught us to value human life. It has never been so precious. Practically every country in Europe is now spending more money for health conservation than ever before. Not only child welfare work but also the whole problem of the health of adults is receiving unusual attention and programs are in the making for a more comprehensive system of health work in the future.

The countries of Europe are dealing with questions of health as a national problem. Their work in child welfare, therefore, is direct. In England grants have been made so that there is at least one public health visitor or nurse for each five hundred children in the country. In France they are already starting a nation-wide system of child conservation, while the child welfare work in Belgium has not only been attended to as one of the most insistent problems in maintaining the life of that country but the program for the future has already been laid down.

Europe has lost its child population through decrease in the birth-rate and in many of the countries through an increase in the death-rate. The latter has been met in part by the extension of child welfare work. In this country we have not yet had to face the tremendous loss of our population through the falling birth-rate which has been such a serious menace in Europe. Sir Bernard Mallett, the Registrar-General of England, estimates that this reduction in the birth-rate has amounted to the loss of 12,500,000 potential lives in Europe since the war began. Possibly because we have not had this problem to contend with, we have not yet awakened to our continued negligence with regard to the excessive waste of life at its beginning. The official figures to date seem to show that the total number of men of our armies who were killed in action or who died from wounds or disease during the nineteen months we participated in the war was about 53,000. During the same period of time 475,000

children under five years of age died in this country, yet we know that the greater proportion of this number could have been saved. For every soldier who has lost his life abroad, nine children under five years of age have lost their lives here. Loss of life during war may be inevitable but such excessive loss of life during times of peace can only be looked upon as the result of criminal neglect.

It seems almost preposterous to put forth continually the claims of the child for a normal and safe childhood. The only excuse for constantly reiterating the plea for child care is the fact that no adequate program for child welfare work has yet been put into effect in this country.

Just at this time, however, we are beginning a new era. Our haphazard methods of the past will no longer be accepted. The time has come when we must search our national conscience and meet this test. However we may extend our health program for the adult there can be no question but that we must reconstruct our health program for the child. As mere life is not our goal but rather the use we make of it, so our reconstruction program for child welfare does not concern itself alone in concentration upon specialized health functions. There is no other part of life that must be so entirely viewed as an age group as that of childhood. "Child welfare" is an expression which gives a vastly greater conception of our duty toward the child than the mere term "child hygiene." We know from our experience that any health program for children can succeed only when it takes into account every other factor that concerns the life of the child, but, in a larger sense, not only do we wish to conserve the health of the child but also his right to the full joy of life.

The children's year program as outlined by the Federal Children's Bureau has been the first national recognition of the need of a health program for children. It has had valuable results in calling the attention of the country to the needs of the child, but it is only the beginning. The time has come to bury factional differences and to subordinate special lines of work to the greater good of the unified effort. We shall not do our full duty to the child so long as we approach the problem from so many angles. We must stop thinking of specialized activities in regard to the child and think of the child itself. Instead of looking from the activity inward, let us work from the child outward, so that, whatever else may result from our efforts in building the world anew, at least we may be able to say that the rights of the child are safe from now forward.

I quite realize that such a broad problem involves many structural changes in our laws and our organizations which relate to child welfare, but nothing less than this broad adjustment will do justice to our ideals. The program I have in mind would be controlled by standards established by our Federal government through the Department of Labor and the Children's Bureau, the Department of the Interior and the Bureau of Education and the program already announced by the United States Public Health Service in regard to the health of children.

This program should include the proper conservation of the mental, moral and physical claims of the child. To be concrete, there should be in each state a department of child welfare, of equal importance with other state departments. All existing activities at present under government control and which in any way pertain to childhood could be brought together under control of this department. One great exception could be made to this—the Department of Education. Here the problems in themselves are so specialized and technical that they may well be considered as a separate function.

However, the Department of Child Welfare should work in close relation to the Department of Education and the work of the two departments should be closely coördinated. The legislative changes that would be needed to accomplish the proper organization of this Department of Child Welfare may seem difficult, but they are not impossible.

Such a department should have a commissioner and its organization should be divided into several bureaus. The functions of these bureaus must necessarily be interdependent and strongly coöperative. Simply as a tentative outline, the creation of the following bureaus is suggested:

1. *A Bureau of Child Caring Institutions.* This bureau might well control the work connected with supervision of day nurseries and foundling babies boarded out in private homes, widows' pensions, the question of the relation of foundlings and illegitimacy to infant morta ty, institutional as well as home care of children and all of the problems connected with dependency and the neglected child. The Bureau of Child Hygiene would naturally coöperate strongly with the Bureau of Child Caring Institutions in all questions relating to the health of the children under supervision.

2. *A Bureau of Mental Hygiene.* The next bureau should be a "Bureau of Mental Hygiene." This bureau should have charge of all matters pertaining to the vast number of mentally defective children. It would naturally be in close coöperation with the Bureau of Child Caring Institutions and, indeed, the question might well be settled as to whether it would not be better to place all normal dependent children in private homes and use the institutions for the care of mentally defective children. The problem of the relation of mental deficiency to crime should also be met in connection with the Bureau of Delinquency.

3. *A Bureau of Delinquency.* Here the relation of crime to health should be worked out, with a proper program for the prevention of crime in childhood and for many other important lines of work. The Children's Courts might well be a part of this bureau. Already the question of the health of children in relation to crime has received a good deal of consideration. The Bureau of Child Hygiene might well coöperate closely with this bureau in this regard.

4. *A Bureau of Recreation.* Playgrounds, recreational facilities and physical training, all closely allied to the health of the child, might properly be brought under one supervision.

5. *A Bureau of Child Labor.* Child labor laws should not be carried out from the labor point of view but from the point of view of the child, therefore supervision of this work belongs properly to the Department of Child Welfare rather than the Department of Child Labor. Recognition of the importance of the physical condition of the child is implied by the fact that the issuance of employment certificates is now largely a function of health boards.

6. *A Bureau of Child Hygiene.* Under this bureau should be outlined the complete health care of children from the prenatal period to adolescence. Such a bureau would follow closely the organization of present bureaus of child hygiene. Its activities include control of midwives, prenatal care, prevention of infant mortality, health supervision and coöperation with the Bureau of Child Caring Institutions in connection with the boarding of children in private homes, health care of all children in institutions, health supervision of the pre-school age child, medical inspection and examination of school children, including school clinics, and the health problems connected with child labor.

7. *A Bureau of Child Legislation.* Each state should have a children's code which should consist of all essential legislation necessary to protect the child from the prenatal period to adolescence. This legislation should be so coördinated that the Department of Child Welfare might function through its provisions.

The Department of Child Welfare, as above outlined, is, of course, merely suggestive. No attempt has been made to give in detail the various functions that might readily be placed under its bureaus nor should it be understood that the outline given is considered inclusive of all activities that may properly come under its control. Nothing less than the use of all possible methods to conserve the health of children should be regarded as satisfactory. The details of such an organization do not, in any sense, present an insurmountable problem. The transfer of functions at present exercised by certain independent parts of our government could easily be accomplished, if the desire were present. The gain which would result from the elimination of all overlapping, different questions of jurisdiction and conflicting methods would, in itself, more than repay any efforts that might be made to obtain it. Under one unified control, such a department would be a factor of the utmost importance in our national life. It would be, in fact, an almost "ideal state" for children. This is not a mere visionary ideal but a practical possibility. To perfect our methods of child care and place such a department in operation should be part of our national reconstruction program. Nothing less will measure the duty we owe the next generation.

As a result of the experience of England, Sir George Newman, the general health officer of that country, has stated that "no reconstruction of the state can wisely ignore the claims of the child." We shall fail to do our full duty to our children and we shall truly be making them pay the price of this war unless we are able to evolve a program that will, in effect, be a Magna Charta of childhood, and this "declaration of rights" will not only include the right to be healthy, it will include the right to get the fullest value from life in all its aspects.

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NOTES ON THE REACTIONS OF BACTERIOLOGIC MEDIA.

JOHN F. NORTON, PH. D.,
Department of Hygiene and Bacteriology, the University of Chicago.

Read before Laboratory Section, American Public Health Association, at Chicago, Ill., December 8–12, 1918.

THE determination of the hydrogen ion concentration, to replace that of the titratable acidity, as a measure of the reaction of bacteriologic media has come into favor in many laboratories since the work of Clark and Lubs.[1] Data have begun to accumulate for various media involving, usually, the reaction for optimum growth of some specific organism. Examples from the literature of this year serve to illustrate. Kligler[2] recommends a P_H value of 7.8–8.0 for Endo's medium, 7.0–7.2 for brilliant green agar and 7.4 for the Russell double sugar medium. Dernby and Avery[3] report an optimum concentration of $P_H = 7.8$ for the pneumococcus in a broth medium, with limiting values for growth of 7.0–8.3. Meyer and Stickel,[4] using the typhoid bacillus, find optimum growths on bril-

liant green media with $P_H = 6.4–7.0$, and on their suggested peptic digest media at 7.0–7.2. A committee of the American Public Health Association reporting on "Standard Methods of Examining Disinfectants"[5] recommends a hydrogen ion concentration between $P_H = 6.0$ and $P_H = 7.0$ and states that the best results are obtained at a value $P_H = 6.5$. Such data are extremely valuable in helping to overcome some of the difficulties in the preparation of bacteriologic media, and it is hoped will be rapidly augmented.

The following notes have been gathered from data accumulated during the past year, while preparing media of various sorts.

It has been the custom with many of us to adjust the reaction of a medium before sterilization, trusting that any further change will be insignificant. This is, of course, not true so far as the titratable acidity is concerned and only true under certain conditions in connection with the hydrogen ion concentration. A broth made from meat infusion, containing 2 per cent Witte's peptone and ½ per cent sodium chloride, was neutralized and heated for 15 minutes in an Arnold sterilizer. The titration was made in the usual manner, using phenolphthalein as an indicator and the P_H values determined against Clark and Lub's solutions with phenol red.

	Titration.	P.
Before heating	0.0	8.8
After heating	+0.57	8.2

A second heating in the Arnold gave no further change. A series of flasks containing meat extract (0.35 per cent) peptone (1 per cent) broth with 1 per cent of lactose and 0.1 per cent of dextrose added was heated in the steam autoclave for 10 minutes at 10 pounds pressure. The following five examples are illustrative of the whole series.[6]

Before Heating.		After Heating.	
Titration.	P_H	Titration.	P_H
+0.2	9.0	+0.6	8.8
+0.6	8.6	+1.0	8.4
+1.3	7.4	+2.1	7.4
+1.5	6.8	+1.7	6.8
+1.8	6.5	+2.1	6.5

The point to be made is that slightly acid, neutral and alkaline media change appreciably on sterilization, while distinctly acid media do not.

There is some value in knowing whether any relation, even if indefinite, exists between titratable acidity and hydrogen ion concentration, in order to correlate previously obtained data with those obtained according to our more recent ideas. Records have been kept of the reaction of various media made from the same ingredients at different times. Meat extract (0.35 per cent) and peptone (1 per cent) formed the basis of all, and sterilization was made in a steam autoclave. The media are plain broth, dextrose broth and plain agar. The following represent the results obtained:

Titration.	P_H
+0.75	7.5
+0.8	7.4
+1.0	7.5
+1.15	7.1
+1.25	7.4
+1.40	6.8
+1.45	6.8
+1.50	6.9

There is a general agreement in such a series which is probably within the limits required in most routine work. But if the ingredients are changed, for example by using a different brand of peptone, P_H values corresponding to titratable acidity are entirely different. The following results were obtained from broth made from meat infusion, to which 2 per cent of a different brand of peptone was added and sterilization effected in an Arnold:

Titration.	P_H
−0.5	8.8
−0.2	8.6
+0.57	8.2
+0.87	8.0
+1.08	7.8
+1.34	7.6

Two results in media prepared in the same way as this last series but with a different variety of peptone gave:

Titration.	P_H
+1.4	8.1
+1.3	8.1

The media in these last two series have been tested with pneumococci. The best growth was obtained in broth with a titratable acidity of +1.08 and a P_H value of 7.8. This is exactly the optimum P_H value obtained by Dernby and Avery[3] but their acidity is reported as +0.3 to +0.5. The titratable acidity of my medium was far greater than is ever suggested for pneumococcus growth. Agar with a +1.4 reaction to phenolphthalein and $P_H = 8.1$ I have used as a basis for blood agar and obtained excellent results in growing streptococci as well as pneumococci. These illustrations serve to indicate a distinct difference in composition of the food materials supplied to microörganisms and this may be as important a factor as the hydrogen ion concentration, but the latter is certainly of special interest.

In the determination of the hydrogen ion concentration of media the excellent methods of Clark and Lubs are usually employed. These involve solutions rather too complicated to be used in laboratories whose work is confined to routine determinations, such as a water works or even a small municipal or medical laboratory. An attempt toward simplification has been made by Barnett and Chapman.[7] Briefly, their method consisted of two series of six tubes, one series containing dilute alkali and the other dilute acid, 10 drops of an indicator (phenol red) being distributed between each pair of tubes in varying proportions. By superimposing the acid and alkali tubes a series of colors was obtained corresponding to P_H values ranging from 6.9–8.1. I have repeated their work and obtained almost identical results. If in place of their "dilute acid" a N/200 solution is used the colors are better. For determining the reaction of a medium 1 cc. is diluted with 4 cc. of distilled water. My tests show that this dilution does not change the results by more than $P_H = 0.1$, an accuracy sufficient for routine work. Further, this determination may be made either hot or cold so that agar media may be tested as easily as liquids.

An objection may be raised to Barnett and Chapman's solution on account of the limited range available. This may be remedied by the use of other indicators in the same manner as they suggest for phenol red. Cresol red gives results only slightly different. I have also used brom thymol blue (0.04 per cent in alcohol). This has been suggested for general use in adjusting media.[8] The following table gives the P_H values for both these indicators according to the procedure of Barnett and Chapman.

Drops Indicator Solution.		P_H	
Acid Tubes.	Alkali Tubes.	Phenol Red.	Brom Thymol Blue.
9	1	7.0	6.3
8	2	7.2	6.5
7	3	7.4	6.8
6	4	7.6	7.0
5	5	7.9	7.2
4	6	8.1	7.4

This combination gives a range of $P_H = 6.3$ to $P_H = 8.1$, this being sufficient to include all the media with which I have worked, varying in titratable acidity from +0.5 to +1.5 (phenolphthalein). The above solutions are quickly prepared and those containing phenol red will retain

their color from 2 to 3 weeks. The brom thymol blue colors fade very quickly.

SUMMARY.

Data have been presented on the relation between the titratable acidity, using phenolphthalein as an indicator, and the hydrogen ion concentration. This relation depends entirely upon the ingredients of the medium.

Sterilization effects appreciable change in the reaction of neutral and alkaline media and but little change in acid media.

Barnett and Chapman's titration method, slightly modified and extended, will give good results for routine laboratory work.

The hydrogen ion concentration of a medium is one of the most important factors in obtaining optimum growths of bacteria. This is illustrated by the growth of pneumococci in broth of higher titratable acidity than theretofore reported, but with proper attention to the actual hydrogen ion concentration.

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[4] J. Infect. Dis. 1918, 23, p. 53.
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[6] Experiments of M. L. Cooper.
[7] J. A. M. A. 1918, 70, p. 1062.
[8] J. Bact. 1918, 3, p. 116.

PUBLIC HEALTH NURSING IN THE EXTRA-CANTONMENT ZONE.

MARY E. LENT, R. N.,
Director of Nursing, United States Public Health Service, Washington, D. C.

Read before Public Health Administration Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

PEACE, with all its wonderful significance, bursts upon us with the realization of opportunities for the fulfillment and development of the work which has only been started in connection with the government. Public health and public health service, recognized during the war as of fundamental importance to the prosperity and productiveness of a nation, promise to be made the keynote of the reconstruction programs of this and European countries. The public health nurse will play an increasingly important part in all public health work, as the person in it who reaches the individual. Public health service cannot be 100 per cent efficient unless there are enough public health nurses to reach every man, woman and child in the country.

The United States Public Health Service, the government's arm for health from the moment war was declared, has had its important piece of work to do in order to make safe and healthy all zones surrounding camps, not only for the military forces but for the civilian population as well. The correction of the dangers lurking outside the camps, such as the mosquito and fly-breeding places, insanitary handling of food-stuffs, the often polluted water and milk supply, the lack of isolation of communicable diseases, has without doubt been some of the very important pieces of work done by the United States Public Health Service, in order to help deliver direct to the firing line men physically fit. It was recognized immediately that no amount of preventive work within the training camp itself could assure this outcome; and that with a camp of, say, 65,000 men within easy distance of a city or town, there would be from one to two soldiers in every home

at least once a week, while hotels, cafés, restaurants, soda fountains, amusement places, swimming pools, barber shops, public conveyances, etc., would be constantly patronized by the soldiers. The crowded and often insanitary places where the soldiers' families were forced to live in order to be near the camp offered one of the greatest problems confronting the workers. A member of the medical profession of London has recently said, "The hope of the conquest of disease lies in prevention, which must be international as well as local. In this respect no man and no community can say that they live to themselves. A badly constructed drain in a country village, contaminating a source of water supply, may give rise to an epidemic of great proportions and this may conceivably be carried by hosts of one kind and another to the world's end."

At the time peace was declared, thirty-seven zones were in good running order. In the majority of these zones at the beginning of the war there was no organization for public health nursing. There were, in a few instances, visiting nurses who were giving mainly bedside care. In a few others there was a certain amount of school supervision of a very incomplete character. But the bringing together and pooling of resources had not been introduced, nor had the great economic and educational value of the public health nurse been demonstrated by this method in any of the zones. Through the assistance of the Red Cross, two hundred trained public health nurses were placed at the disposal of the United States Public Health Service and distributed throughout the twenty-two states which the thirty-seven zones represent. A certain percentage of them were assigned to school work and to follow-up work in the homes, where they were able to interpret to parents the great importance of corrective work, and what is of even greater consequence, to discover hidden dangers in the way of communicable disease which had either not been reported or had not even been considered important enough to require the services of a physician. Thus in four of the zones, while doing the regular routine work, we find the public health nurses recording for one month 574 cases of communicable disease which had not been previously reported. Who can say what the result would have been, both to the men in training in these cantonments and to the civilian population, had there been no nurses to help in their protection—how many hospital cases to be cared for and how many nurses needed to nurse back to health, if possible, from sickness which was thus checked at its source! For at this rate thirty-seven zones would average 5,291 cases discovered by the nurses in one month. As another example, a child in a kindergarten was discovered to have diphtheria. All contacts were cultured, with the result that two carriers were found, and after proper isolation and treatment and a thorough cleaning of the schoolrooms, no further cases developed.

During the disastrous influenza epidemic, which has proven more fatal even than war in its total mortality, there were many zones with not more than a hundred hospital beds to meet the needs of from ten to twelve thousand cases of influenza, with many developing into pneumonia; and it is impossible to estimate the amount of neglect which would inevitably have resulted but for the numbers of trained public health nurses ready throughout the country to supervise and direct the work of hundreds of untrained assistants.

During the summer months, when the schools were closed, it was possible for the public health nurses to help establish and in many zones carry on, in con-

nection with their routine work, the program launched by the Children's Bureau for the weighing and measuring of babies and the establishing of welfare clinics. The results were almost beyond belief in the coöperation of thousands of mothers and the opportunities open to the nurse to come into direct contact with the home life, that most important of all factors in the fight against disease.

Industry, too, has opened its doors and here the public health nurse has an enormous field for useful activity in services rendered both the employer and the employed, for in nursing the sick to early recovery and return to work, she is doing work of actual economic value, getting maximum economic results.

One of the most important pieces of work accomplished during the term of the war has been the establishment of the venereal clinics in connection with the other zone work. Many of the clinics are in cities and towns where such care has never before been available. The social aspect of these diseases is at last receiving the attention which we, as public health nurses, have long felt the need of. Attached to many of the United States government clinics are social service departments, conducted by socially trained public health nurses whose business it is to ascertain the moral, economic reasons for the infection of each person applying for treatment. The responsibilities of the nurses in these clinics have been of a varied character, the most important being the protection of the military forces, the safeguarding of the community, and the care of the individual and his innocent family. As the work has developed, the enormity of the problem becomes more and more apparent, and the definite program being worked out by the United State Public Health Service in the newly established Department for Venereal Diseases has become a nation-wide movement.

So far public health nursing has been mainly carried on by private agencies and organizations. The National Organization, formed in 1912, aimed to standardize public health nursing work and training, to establish public health nursing courses in training schools and universities and to secure scholarships for these courses, and to do everything possible by this means to prepare to meet the demand for public health nurses which is arising on every hand and which will be enormously increased by the national health program proposed by the United States Public Health Service through rural and industrial hygiene demonstrations in which the public health nurse will be called upon to play an important part. During my fourteen months' work in the zones, I have been in close touch with the situation in each of them and have had unusual opportunities to study the possibilities for development. The time has come, in my opinion, to create through legislation a division of public health nursing within the State Department of Health, with a qualified public health nurse as the chief, answerable to the commissioner of health, and with county units so distributed as to insure covering the entire territory. Never in the history of the world has the field been so rich and ready for the well-educated, well-trained, enthusiastic public health nurse with the vision of a strong race of healthy men and women.

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If You Need a Well-Trained Sanitarian for Your Town, Let the A. P. H. A. Help Employment Bureau Know.

INDUSTRIAL LIGHTING.

C. E. Clewell,
Assistant Professor of Electrical Engineering, University of Pennsylvania.

Read before the Industrial Hygiene Section, American Public Health Association, at Chicago, Ill., December 11, 1918.

DURING the past decade a remarkable change has taken place in the attitude towards the physical environment of American industries. Employers and shop owners, in general, have come to view the practical problems connected with adequate ventilation, highly sanitary shop conditions and pleasing surroundings as having a vital relation to the efficiency of their working forces. Satisfactory natural and artificial lighting in the factory is one of the important phases of such environment, and the principal object of this discussion is to point to certain aspects of the industrial lighting problem in their bearing upon industrial hygiene.

Factors Which Have Influenced the Situation.

Several forces have been at work during the past few years, which have centered the attention of factory employers more and more upon the problem of standardizing lighting conditions and upon the attainment of highly effective illumination results. One of these has undoubtedly been the development of new and greatly improved window arrangements for industrial buildings, and another, the advent of electric and gas lamps possessing unusually high efficiencies of light production compared with the illuminants available but relatively few years ago.

It is difficult to realize that scarcely ten years have elapsed since the tungsten electric lamps began to find a place in industrial lighting. More recently, the improved gas filled type of the tungsten lamp has become a practical realization. The introduction of these new types of lamps, which are capable of producing three or more times the quantity of light for the same energy consumption than the older carbon filament lamps, has brought with it the possibilities of greatly improved factory lighting planning. This feature can hardly be overestimated when it is considered that many limitations were imposed in the earlier practice by older forms of illuminants.

Another and, perhaps, equally significant force which has made itself felt in the attention given to the lighting problem by manufacturers and employers, has been the growing tendency for those responsible for labor conditions to pay more and more attention to the needs of the workingman for suitable physical surroundings, if he is to be expected to perform his work accurately and without undue fatigue. There is little or no difficulty in grasping the idea that good light, whether it be natural or artificial, is essential from this standpoint. To the student of industrial hygiene, the lighting problem appeals in its relations to such factors as the health, the comfort and the conservation of eyesight of the factory employee, and also, possibly, in a measure at least, to the great problem of accident prevention.

Economic Phases of the Problem.

To these factors relating to industrial hygiene, there might be added such phases of the problem as that of the effect of good light upon production rates, that is to say, the comparison of poor with improved light on the rate at which an employee can perform his daily tasks. To those who are inclined to view the situation purely from the standpoint of in-

dustrial hygiene, it is perhaps quite natural to conclude that the health and the eyesight of the vast working forces of America's industries demand in themselves an adherence to the elementary principles of good light for factory interiors. This attitude assumes as a matter of course that the delinquent employer should be led to reform his factory lighting conditions so as to make them accord with the ideals of those charged with the modern conception of industrial hygiene, and that if persuasion fails, he should be required by legal regulations to take such steps.

The appeal from the humanitarian viewpoint is usually strong enough to reach the liberal and progressive employers, of whom fortunately there is an ever-increasing number in this country, but there will probably always be found a considerable number who lean upon the "let well enough alone" policy, and to whom these altruistic motives make little or no appeal. It is indeed fortunate, therefore, that for such cases, there is another and sometimes more effective argument through the channel of self-profit, based on the fact that time and again good lighting has been demonstrated to be closely related to increased production, less spoilage and more satisfactory conditions of shop management than is the case in those factories which are perpetually gloomy due to inadequate window areas and to insufficient artificial lighting facilities. It is also true that the prevalence of accident compensation laws has led many an employer to view the advantages of good lighting conditions as an important factor in the minimizing of accidents and in the attendant reduction of workmen's compensation insurance rates.

Lighting and Health.

While my own experience and observation in the lighting field during the past ten years has been more especially concerned with the engineering aspects of factory lighting, no student of this phase of shop environment could well fail to detect the close relationship which exists between good light and particularly between adequate natural light and the health and eyesight. It is sufficient for our present purposes merely to mention a few of the papers which have treated of this side of the lighting field, remembering, at the same time, that there is much room for further and more conclusive research in this phase of the problem.

One of the most complete papers of this nature is that of Schereschewsky and Tuck* on "The hygienic conditions of illumination in workshops of the women's garment industry." This interesting survey of the lighting conditions in various buildings of this class in New York City, contains in its opening paragraph a statement that may here be quoted as giving a good idea of the importance of the subject in relation to industrial hygiene:

"In view of the fact that a large part of the industrial operations in the women's garment trades involves the close and continuous use of the eyes, the illuminating conditions which prevail in the workshops of the industry become highly important from the standpoint of industrial hygiene. The necessity for adequate and correct illumination on the various working planes becomes the more apparent from the consideration of the data in relation to the vision of garment workers contained in the foregoing portion of this report.† These data show that only a little over 25 per cent of the workers whose visual acuity was tested had normal vision in both eyes."

Other Important Viewpoints.

In this same general connection, the following quotation from an article‡ by

*P. H. Bulletin No. 71, U. S. P. H. S.

†Part 1 of P. H. Bulletin referred to in footnote 1.

‡Published in "Fenestra" by the Detroit Steel Products Company.

Dr. Katherine M. H. Blackford, is of interest:

"I have examined the health records of many large factories, and in many cases have been astounded at the total number of days' work lost in the course of a year. Upon analysis, these records showed that by far the most common complaints among employees are colds, la grippe and pneumonia.

"There is no need for any employer to guess at the cause of these troubles, nor is there any question as to the best way to prevent them. Let the facts speak for themselves.

"One factory which I was called upon to investigate was in an old-fashioned building, with small windows, most of them covered with the accumulated dust and dirt of years, and only the most crude and primitive methods of ventilation. I found in that factory that out of a possible 31,173 days' work, there was an actual loss of 3,512 days or nearly 11¼ per cent.

"In another factory, doing the same kind of work, in a modern building with excellent light and scientific ventilation, I found that out of a possible 85,765 days' work, there was a loss through illness of 1,547 days' work, or only about 1.8 per cent.

"The case of these two factories would not necessarily be conclusive, but in all my experience I have found the same general relationship between light and ventilation and the number and length of absences due to illness."

These statements indicate the importance of adequate window areas both from the standpoint of ventilation and of light, and they tend to demonstrate the value of modern ideas of factory construction where a large proportion of the side wall and roof areas are devoted to windows.

Illumination and Eyesight.

The relation of modern artificial lamps to the eyesight of those who work under these lamps forms a subject of utmost concern to those responsible for the industrial hygiene of the working classes. In recent years electric lamps have been developed which are vastly superior to the older types in the quantity of light produced for given energy consumption, but unfortunately, these modern lamps possess such a high degree of light concentration that the glare effects due to the excessive brilliancy are harmful to the eyes of workers unless unusual care is taken to protect the eyes from direct light by some form of shade.

There is a common tendency among those who have made a special study of industrial lighting conditions to feel that the greatest single error in the use of lamps for the artificial factory lighting system is in a neglect of the proper devices for shielding the eyesight from these pernicious bare lamps. No less an authority on eyesight than Dr. George E. de Schweinitz, the noted ophthalmologist of Philadelphia, has said that "The work of a national committee for the prevention of blindness should not be concerned alone with the prevention of blindness, in the strict sense of that term. It ought to be concerned with, and surely is much interested in, the elimination of the evils which spoil eye efficiency. I am thinking about Elsa and the fading light, and I am thinking, too, of the kind of light that ought to exist in homes, in schools, in factories and in stores."*

There can be little question in these days of highly-brilliant light sources that more attention is required for safeguards against eye injury and possibly less for the attainment of the utmost in efficiency.

* Journal A. M. A., Vol. 66, No. 6, p. 396.

Both sides of the question are obviously important, but the latter should not receive all the attention to the exclusion of the former.

Engineering Aspects.

In a paper of this kind where the chief emphasis is placed upon the relation of light to industrial hygiene, it is desirable merely to touch briefly upon the engineering aspects of the industrial lighting problem. The fact that detailed investigations into the accident rates in given industries have shown the percentage of accidents to be greater when the work is performed under artificial light than under natural illumination, may be taken to mean that all the more care should be devoted to the careful planning of the artificial lighting system so as to eliminate the presence of factors which contribute to the likelihood of accidents.

Among the factors is that of the prevention of glare as previously mentioned. In the minimizing of glare one possibility which has gained widespread acceptance is the plan of mounting the lamps well overhead so that they may shed a general illumination over the entire working area. Another item is the matter of uniform lighting conditions in contrast to the scheme of placing the lamps down close to the work, with each lamp enclosed by a metal cone-shaped reflector so that merely a small spot is illuminated beneath each lamp. With such systems, the aisles and quite a proportion of the floor area may be in comparative darkness, thus tending to an undue accident rate caused by the workmen being obliged frequently to transfer their line of vision from relatively light to relatively dark spaces.

It is only fair to the manufacturers of lighting appliances, to say that the shades and reflectors as well as the lamps now available for artificial lighting, when properly selected and used, can be made to produce highly efficient as well as comfortable lighting conditions. In like manner, the manufacturers of window sash have taken a very active part in the developments of modern factory building design, and in many cases not only is the window arrangement planned so as to provide unusually excellent natural lighting conditions, but also very effective results in ventilation.

Summary.

The foregoing notes are intended mainly to present a very important aspect of factory environment. Natural and artificial lighting, while only one of the factors which enter into industrial hygiene, affect one of the most important aids to all manufacture, namely, the eyesight. Emphasis has been placed upon the fact that while factory illumination is vitally concerned with the problem of industrial hygiene, it is also very much concerned with the engineer, both in the selection and installation of the lighting facilities. From a number of standpoints, industrial lighting forms an important part of the many-sided problem of factory management, and when considered in terms of the attitude of today towards such phases of the relationship of employer and employee, it would appear that the proper lighting of the industries is destined to receive a greater degree of attention than has been the case in the immediate past.

I venture the hope that the ideas advanced may be suggestive of the importance of this aspect of the shop environment, and that they may possibly lead one or another to the thought of adding to the all too meager fund of knowledge concerning the influences of light as a factor in health and in the conservation of eyesight.

SANITATION AND CONSERVATION IN THE MUNICIPAL UTILITIES OF ROCHESTER, N. Y.

EDWIN A. FISHER,
Acting City Engineer,
and
CAPTAIN JOHN F. SKINNER,
Principal Assistant Engineer.

Read before Sanitary Engineering Section, American Public Health Association, at Chicago, Ill., December 8–12, 1918.

WATER SUPPLY, SEWERAGE SYSTEMS AND REFUSE DISPOSAL.

THE topographic situation of the major part of Rochester is such that not only no pumping is required in either the domestic water supply or the sewage collection and disposal, but some little return is derived from power developed in both cases.

The mean level of the city is about 388 feet below the mean level of Hemlock Lake, the present source of the domestic water supply, and about 260 feet above Lake Ontario into which the storm-water and the effluent from the sewage disposal systems discharge.

The domestic water supply is from Hemlock and Canadice lakes, with the future possibility of two more lakes in the immediate locality—thirty miles south of Rochester. The total available watersheds have an area of 170 square miles, of which 7 per cent is water area. The highest of these lakes lies about 580 feet above the mean level of the city and the lowest about 286 feet.

The two lakes now in use are each about 86 feet deep, and their shores have been purchased and protected. There are but a few hundred people on their watersheds, and the water is rendered safe by long storage in the lakes.

As water is collected from the catchment area of the outlet of Canadice Lake, and as this is a quick watershed, it was deemed prudent to install a liquid chlorine apparatus.

At Hemlock Lake gate-house a turbine has been installed and a portion of the supply is passed through it, thus utilizing the excess head which was provided for safety in case of a very low lake, thereby furnishing power to light the gatekeeper's residence and grounds, pump water for use in the buildings, and compress air to operate a small sewage ejector, etc.

About 200 acres of land owned by the city are under cultivation, and while no profit has been derived from the crops thereon, the use of this land has been in line with the general idea of conservation. There has also been set out on the watershed, during the past twenty years, about 900,000 spruce seedlings.

In both of the distributing reservoirs large central fountains utilize the excess head provided, and furnish an interesting park feature which has sometimes been enhanced by the use of colored spot lights projected on the spray.

Works are now constructed for conducting the waters of Hemlock and Canadice lakes to Rush (storage) Reservoir, about ten miles from the city, through three conduits, and also from Rush Reservoir to the distributing reservoirs in the city. Two additional conduits will bring in the remainder of the supply from the total watershed. The Rush storage reservoir holds about three days' average supply for the city, and the two distributing reservoirs, Highland and Cobb's Hill, on a range of hills on the south side

of the city, contain respectively one day's and one week's supply.

Highland Reservoir was constructed with the original works in 1875, and Cobb's Hill Reservoir was begun thirty years later. They are at the same elevation, about 125 feet above the mean level of the city, and furnish through an excellent system of distribution a pressure of about fifty pounds.

The city is crossed from northwest to southeast by the Erie Canal and the New York Central Railroad, and from south to north by the Genesee River. The new Barge Canal crosses the river at grade a little south of the city, and the river will be used as a harbor for three miles, or nearly to the business center.

Immediately north of the business center the river falls precipitately ninety-eight feet, and two other falls in the next two miles bring it to the level of Lake Ontario. It then flows from the Lower Falls through a beautiful gorge about five miles to its mouth, the Rochester Harbor, on Lake Ontario.

The total fall through the city is about 260 feet, and the falls are thoroughly utilized by the local electric light company and other private owners. A proposed storage dam up the river, at Portage, would make the power from this 2,500-square-mile watershed more dependable.

With this fall to Lake Ontario and the general northerly dip of the surface the ultimate disposal for sewage was indicated as dilution in the lake, although for many years the river served the purpose adequately.

The sewers built were generally of the combined type, and when the subject of "disposal" was seriously undertaken, the first work was the construction of an interceptor which would reach the mouths of the sewers entering the river. This was largely in rock tunnel, six feet in diameter, and was arranged to carry the dry-weather flow and about 250 per cent additional of storm-water, after which each of the old main sewer outlets to the river acted as a storm overflow.

The outfall sewer to the disposal plant site at the lake secured descending grades throughout, and the conduit was varied in diameter from six feet to eight feet, dependent on the rate of grade.

The plant consists of racks and six large grit chambers arranged in parallel and followed by Riensch-Wurl screens of $\frac{1}{16}$-inch, $\frac{1}{8}$-inch and $\frac{3}{8}$-inch slots, from which the screenings are removed on a belt conveyor to industrial cars operated by storage battery locomotives.

The sewage then passes through ten Imhoff tanks in parallel and into a lock-bar steel penstock where, with about fifty feet head available, the normal sewage flow generates about 150 H. P. and then flows through 9,000 feet of 66-inch lock-bar steel pipe under the bed of Lake Ontario to a discharge in fifty feet of water a mile and a half from shore.

The extensive sludge beds furnish a fertilizer which is being used on a 300-acre farm of fine, sandy loam, which constitutes the sewage disposal property.

The power developed lights the plant, operates screens, conveyor and gates, pumps water and charges the storage battery locomotives, and the surplus is sold to the local lighting company through the break-down line which was constructed to its plant for safety.

Since putting this plant into operation in March, 1917, the fish which had deserted the lower river for a number of years, are said to have come back, and pleasure boating has been resumed.

The plant above described is often referred to locally as the Irondequoit or Main Disposal Plant.

A second, much smaller, construction, known as the Brighton Disposal Plant,

serves the eastern part of the city which is too low to discharge into the main outfall sewer. This is a separate system, but the sewage is diluted by considerable infiltrated ground water.

This territory within the city at present contains 1,386.5 acres. About double this area can be served by this plant when the city boundary is extended somewhat, and certain projected sewers are constructed. Ultimately the sewage of 60,000 people can be cared for at this plant.

It is planned for future extensions, and as at present constructed will care for a population of upwards of 10,000 people.

It consists of three parallel detritus chambers each followed by a fine bar rack, an Imhoff tank of two cells with a pair of sludge beds, an operating house, an automatic dosing device, a pipe gallery, an acre of sprinkling filter area divided into two units each discharging into a final sedimentation basin and thence over a measuring weir and through twin effluent pipes to Irondequoit Creek, three-fourths of a mile above the head of Irondequoit Bay, which is itself a deep arm of Lake Ontario, about five miles long.

The operating house contains a Pelton water wheel actuated by the sewage, with a head of seventy-five feet from the screen house, an electric generator and switchboard, an air compressor and receiver and a laboratory. Clarified sewage is pumped for sprinkling, heat is furnished for sterilizer, oven, muffle furnace, incubator and hot plate, and the plant and grounds are lighted by the power thus obtained.

The plant was first operated March 1, 1916, and has always produced a clear colorless, odorless, and stable effluent.

It was deemed advisable to carry the process further than at the main plant and provide for oxidizing the effluent before its discharge into the stream.

Records of operation for the year 1917 are available and may be condensed as follows:

BRIGHTON PLANT.

Total quantity of sewage treated in 1917 ..... 371,000,000 gal.
Total cost of operation 1917 ..... $4,236.86
Cost of sewage treatment per million gallons .. 11.42
Detritus removed per million gallons .... 0.74 cu. ft.
Screenings removed per million gallons .. 0.67 cu. ft.
Sludge removed per million gallons in Imhoff tank ..... 1.116 cu. yd.
Sludge removed per million gallons in final tanks ..... 1.055 cu. yd.
Total removal per million gallons 2.223 cu. yd.
Settleable solids in crude sewage 2.56 cu. cm. per liter in 2 hours
Settleable solids removed in Imhoff tank 98%
Suspended solids in crude sewage 123.9 parts per million
Suspended solids removed in Imhoff tank ... 76.2%
Suspended solids removed in entire process .. 91.7%
Nitrates, parts per million in { crude sewage .. 0.27 / final effluent .. 5.29
Dissolved Oxygen per cent saturation { crude sewage ..... 38.3% / final effluent 66.5%

	Imhoff Tank.	*Final Basins.*
Specific gravity of sludge	1.08	1.11
Per cent moisture	82.3 %	82.9 %
Volatile matter in dried sludge ..	22.8 %	16.9 %
Total organic nitrogen in same	2.74%	3.84%
Ether soluble matter in same	3.77%	

The city collects and disposes of its garbage by day labor. The garbage is treated by the reduction process, and the grease and tankage sold by the city. The refuse is also collected by the city and disposed of by sorting out paper and other valuable material and the remainder passed into furnaces in the incinerator plant operated by the city.

This operates during an eight-hour period in the daytime; at the garbage plant the reduction process goes on during the night. In order to conserve the steam from the incinerator plant it is disposed of to the local railway and light company, which company in turn furnishes steam for the reduction of the garbage.

EFFECT OF FOOD CONTROL ON THE FOOD SUPPLY.

HARRY E. BARNARD, PH.D.,
State Food and Drug Commissioner, Indianapolis, Ind.

Read before Food and Drugs Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

FOOD control as a function of government is exercised for the protection of the consumer from fraud and deceit and from the injurious effects of unwholesome foods which uncontrolled would reach the table. In the past twenty years the control of the food supply through federal, state and municipal agencies has reached a state of perfection creditable alike to the official and the manufacturer and distributor. The percentage of adulterated and misbranded samples has steadily decreased, and the quality of the food supply has on the whole as steadily improved. So it was that when some eighteen months ago we learned that we were to win the war with food we were producing foods under well-regulated conditions, both as to sanitation and the character of raw material, and we were safeguarding the quality of those foods along the long road between the producer and the consumer.

Some years ago when restraint was new and regulations were viewed with distrust, there was a general feeling that trade would be hampered rather than helped by supervisory control. This impression, not altogether wiped out, was visualized rather strongly when the issues of war made it necessary to restrict the food supply at home that those who were fighting for us, our allies and our own, might be fed.

It was no easy task to change the eating habits of a hundred million free-born people almost over night. It was the harder because at least half our people were producers or lived close to the sources of production and, because they could see around them the abundance of the last harvest, they gave little heed to the tales of famine and the hunger-call that came from people they did not know. But as their sons became soldiers and sailed away to take their part in the world war, their horizon widened, they understood why food was a munition of war and they obeyed, even to the letter, the regulations of the food administration.

Wheat bread, white and fine, has been our staple food. When wheat was demanded for export in quantities far in excess of our actual reserve supply we had to find a substitute for it. And so the slogan—Reduce the eat in wheat and meat and toot the tute in substitute. The word substitute has always sent a shiver down the spine of the food control official. He has held that the real thing was none too good and he has checked in every possible way the introduction of substitute foods. So the war program was rather upsetting both as to his dogmas and his practice. Fortunately for the conservation campaign, and his own stability, no food official imposed on the consumer his personal ideas as to the use of oleomargarine or glucose or corn flour. On the contrary he most heartily entered the substitute campaign and with his organization and by his example led the way to as real a victory for Hoover's army as that won by our soldiers in the Argonne forests.

Today we are looking back on war. In less than a month the nightmare of triumphant Mars, dominating a suppliant world, has faded to the littleness of a bad dream. We are again a peaceful people—independent in thought and deed—living our normal lives and eating what we want to eat. The food control measures which grew out of war's neces-

sities are for the most part abandoned. The sugar bowl is back on the table. Meatless days are forgotten. White bread is again the staff of life.

We have now an opportunity to review the experiences gained in the two types of food control and perhaps to find an answer to the question so often put to us—Does food control increase prices, restrict commerce, discourage invention?

There is no doubt that the first regulatory statutes checked the inventive genius of the manufacturers who saw fortunes in the production of honey from glucose, cider vinegar from grain distillates and caramel, strawberry jam from apple stock and anilins. Very probably the price of some staples increased temporarily when fraudulent competition was removed. Markets flooded with cheap and imitation products, masquerading under fraudulent labels, are not receptive of pure, high cost goods. Good milk, before sanitary dairy control, sold at the price of the worst milk in the market. And naturally with the removal of vicious competition, the honest product, true to name and certain in quality, earned its reward in stimulated demand and increased values.

But this very condition quickly reversed the upward curve. For capital, no longer fearing unfair competition, sought investment in the food industry. The manufacture of staple foods increased. Competitive brands became numerous. The best goods for the price won the goodwill of the consumer, with the result that in 1914 food prices were at a minimum and food quality was the highest in history. The reports of the food analyst during the fifteen-year period, 1900–1915, showed a constantly decreasing percentage of adulteration. The work of the inspector in the field was increasingly fruitless as to the number of samples of adulterated foods he took, and always gaining in value because of the tendency to constructive and helpful work both at the factory and the retail store.

If food control, fairly administered, has checked the development of the food industry, no evidence to that fact is available. On the contrary the amazing progress of the canning industry, from the sardine packer in Maine, who reluctantly accepted inspection only to find in it his salvation, to the corn canner in the central states who had to be forced to pack true sweet corn instead of field corn sweetened with saccharin, most definitely attests the commercial value of food control. The meat packer, who once fought federal supervision, now recognizes Uncle Sam's inspectors as his best advertising asset; the baker, who worked behind closed doors, now proudly acclaims his plant as a palace of cleanliness and urges his patrons to inspect his white tiled walls, his spotless work rooms, and the health records of his medically inspected employees.

As I look back over nearly twenty years of active control work I find but few laws that have checked the development of food industries, or tended to increase food prices. Among these few, one law in particular stands out as a striking example of vicious legislation, deliberately enacted and enforced against one legitimate industry for the purpose of stimulating another. That law is the oleomargarine law on the Federal statute books and its counterpart as it is enforced in many of the states. Oleomargarine legislation, demanded by the dairy interests to protect them against the assault of illegally sold oleomargarine, has taken the form of revenue legislation and by the imposition of taxes has sought to cripple competition. And for many years a perfectly wholesome food, made of the finest of raw materials, in sanitary and inspected factories, has gone to market bearing an

indefensible tax or has sought the user under the name of butter through illegitimate channels which would have little reason to exist if the evasion of the tax did not offer handsome profits. And today the housewife who wants a yellow oleomargarine either pays ten cents a pound as a tax for the privilege of pleasing her eye or goes to the trouble herself of incorporating the color in the spread before placing it on her table. But the butter manufacturer is legally authorized to use the same color in the same way and for the same purpose without declaring the presence of added color or paying any tax for the privilege. Of course there is no justice in either case. Added color undeclared adulterates the butter just as it does oleomargarine and the tax is an indefensible burden laid on the working man's table. And the burden is as unnecessary as it is indefensible. Every food law, federal, state, or municipal, controls fraud, and it is just as easy to stop the sale of oleomargarine for butter under that law as it is the sale of watered milk, or imitation vinegar, or adulterated spices.

The argument advanced by the dairy interests that their product needs protection is of course as silly as it is unfounded. Any product that is constantly advancing in price needs no protection from competition. The demand for butter from every consumer who can afford to pay the price for flavor, food value and universal adaptability in the kitchen, will take care of competition. Butter, well made from good raw material, needs no protection. Oleomargarine, an equally good food, should have free access to the table of every one who wants it.

The regulations imposed in the interest of milk supplies of unquestioned purity have increased production costs, in some ways very materially; better barns, sanitary milk houses, sterile packages, refrigeration, tuberculin tested herds, all cost money but they increase milk values even more proportionally. No price is cheap enough for poor milk. Any price in reason is not too high for the food our children must have. And so the protest of the short-sighted dairyman that the sanitarians are forcing him out of business is of little weight and quite as invalid is the wail of the consumer that regulations of the health department are increasing the price of food.

Some years ago Congress was prevailed upon to pass the mixed-flour law, ostensibly as a revenue measure, actually as a protection to the flour miller from the theoretical danger of the competition of corn flour. Mixed flours must now be prepared in licensed factories and sold, tax paid, under special labels. There is, of course, no objection to labelling mixed flours. They should be so labelled but no logical food official can find any reason for the tax. The Victory flours recommended for use by the United States Food Administration were subject to the tax and restricted sale because of the necessity of licensing the miller and blender. There was no way around the obstacle placed in the path of commerce by Congress, not even when the conservation of wheat was a vital war necessity.

In some ways the prohibition of the use of preservatives has tended to increase manufacturing costs. Chemicals secure keeping qualities more cheaply than proper sterilization and selected raw materials. And fortunately, for the consumer, most chemical antiseptic agents are taboo in the nation's food supply. No sanitarian would countenance their use in order to cheapen costs when by their presence the wholesomeness of foods so preserved is materially reduced. During the sugar shortage, we have heard, especially from the bottling and ice cream trade, a demand that the use of saccharin be permitted as a sweetener. But when

the voice uttering the demand was diligently sought, it appeared that the cry was that of the salesman for the saccharin manufacturers who were taking an opportunity to capitalize the stress of war for their own benefit. By no stretch of the imagination can we visualize a cheaper sugar supply as the result of letting down the bars to this the most notorious fraud recorded in the annals of food control.

The regulatory work of the United States Food Administration has been most successful. The control of the baker, miller, commission merchants, broker and large grocer has functioned through the development of a license system that denied the right to do business except to licensees, and provided for forfeitures of licenses in case of proven violations. This control, arbitrary and unprecedented, was feared at first. But it was very soon found to be a real stimulus to good business, and today, though regulations are being rescinded, the licensed industries are better business houses because they were compelled to adopt modern methods of accounting and stock recording, to sell products in uniform packages, to eliminate speculation and forego speculative profits.

The control of food industries by the Food Administration will cease with the signing of the treaties of peace. But the lessons of the past year and a half will not be forgotten and it is very probable that many of the regulations will, when they do not violate the state or federal constitutions, be enacted into law.

If the food supply in the years to come is more abundant, more readily conveyed to market, cheaper because we have learned how to increase crops and reduce wastes, facilitate free movements by rail and motor truck, eliminate profiteering and gambling, the necessities of war may, in a very real way, become the blessings of the people.

Water Purification on Wheels.—In order to supply the troops in France with pure water, a number of miniature water works have been placed on motor trucks. These follow the army in its movements. The water is treated by rapid sand filtration and then with liquid chlorine. The water is then stored in tanks which serve as clear water reservoirs.

Each unit not only has a treatment plant, but is also equipped with a laboratory. A chemist, bacteriologist and a pump man are attached to each unit. These men carry out the necessary tests and supervise the purification of the water. Tests are made every two hours.

A number of these units constitutes a water tank train. The unit pulls up near a stream and the water is pumped from the stream by a gasoline engine. Each unit is furnished with extra pipes and tools, so that all repairs may be made on the spot without delay. The trucks are equipped with electric lights so that work can be carried on at night. The units are operated by the personnel of the Sanitary Corps of the Medical Department.—*Municipal Journal*, July 13, 1918. (*M. P. H.*)

Italian Opinion of the Nature of Influenza.—Influenza is a polybacterial epidemic. No one germ is responsible for it. The germs causing it have had their virulence suddenly enhanced by some mysterious influence, electric, atmospheric or telluric, some sudden modification of the physical and chemical ambient in which mankind lives. Besides the bacteria, the pathogenic factor is probably a complex of many minute causes. These of course are beyond our range of knowledge. Too little is known yet of these "cyclonoses" for us to hazard any serious contributions to this important subject.—U. Baccarani, *Riforma Medica* (*Naples*), 34, 870 (1918); *Jour. A. M. A.*, 72, 151 (1919).

Prophylactic Inoculation Against Pneumonia.—Preliminary clinical reports seem to be highly satisfactory. The author feels definitely assured that the vaccine will prevent infection by types I, II and III. The lipovaccine is such that much additional pneumococcus material may be added, without increasing its toxicity.—E. A. Fennel, *Jour. A. M. A.*, 71, 2115 (1918).

PRESENTING TRUTHS TO THE PEOPLE.

Philadelphia Street Railway Aids in Health Education.

This is the striking way in which Dr. Wilmer Krusen, Commissioner of Health and Charities of Philadelphia, presented a truth to the people of his municipality. This poster was displayed on the front of the trolley cars in his city during the recent epidemic of influenza, and, as one can see at a glance, used the unfortunate situation to impress on the people an exceedingly important lesson in sanitation and health. Other equally striking legends adorned other cars, and similar ones on a smaller scale depended from the electric light poles. This picture is presented through the courtesy of the Philadelphia Department of Health.

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AMERICAN JOURNAL OF PUBLIC HEALTH

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THE EXECUTIVE COMMITTEE AT WORK.

It is worth while for members of the Association to cast an eye over the minutes of the meeting of the Executive Committee in this issue and see how already the Association is beginning its work in a larger field. The gift of the Chicago Committee of the balance remaining after the expenses of the meeting had been paid is important as showing the feelings in that great city towards work of the Association.

It will be seen that the Association intends to make its members better acquainted one with another and with the general work of the Association, by sending to all of them a monthly, gossipy little sheet, the *News Letter*. To this all members are invited to send notes of a light and newsy character.

Already the matter of enlarging the field of the Association has taken shape in cordial relationships with the fraternal organizations. These will be able to help the Association in its efforts towards the education of the public in health matters, by bringing the thoughts which the American Public Health Association may be able to present to them to their own enormous body of constituents. Public health education, through the support which it will afford, is the foundation-stone for a better public health administration.

It will be noted that the Association is ready to advise and coöperate with state, provincial, and municipal boards, with a view towards assisting them to obtain proper legislation. This important function, however, is dependent upon funds, and the activity of the Association in this line can be undertaken only in ratio to its financial backing. The position taken by the Executive Committee in the support of bills before Congress is important because in the mass of conflicting evidence which will always be presented to legislative committees by different interests, the body that can present sane, reasonable, and unbiased opinions will have always an important function.

Coördination was the keynote of President Vincent's ringing address at the Chicago meeting. It will be of interest to all of the members to realize that the Executive Committee has had under discussion for perhaps two years the formulation of plans towards a similar end. This now takes tangible form in the vote that the President

call a conference of the largest national health organizations towards coöperation and coördination of effort. In the same vein is the suggestion by Doctor Evans to bring together the special state societies through federation and to advocate the creation of a central state council. In the same direction is the suggestion that the draft of a model constitution for state health societies be prepared.

It is interesting to see that the plannings for the meeting at New Orleans are already under way. The date proposed by the New Orleans Committee, October 6–9, has been practically accepted, and the occasion will be one in which the Association may give a tremendous impetus to the anti-malarial program in the South, through its ability and opportunity for bringing together governors, mayors, and health administrators, who can discuss the situation together and benefit each by the experience of the others.

The enormous importance of personal hygiene, emphasized by the attention which the war has given to it, will lead to discussion at New Orleans with reference to the formation of a new section in this specialty.

Chicago devoted its sessions to a very considerable extent to influenza, but in the midst of an outbreak of such universal distribution the question of figures was necessarily left aside. There is every reason to believe that the committee on influenza statistics will be able to present at New Orleans what will be practically an international survey of the pandemic.

It will thus be seen that the Executive Committee is no idle body, that it has in mind not only the larger policies on which the future of our great Association must be based, but is giving attention to those factors like the annual meeting which serve to interest not only members of the American Public Health Association but the great outside population of the country. R.

YOUR HEALTH DUTY TO YOURSELF.

In these days of meeting and mixing with many persons, we are constantly making indirect or direct contacts with these persons, who may be or may not be sources of infection. In times of epidemic, in particular, it is wise to consider every one a possible source of infection, and to avoid all unnecessary contacts. This is the fundamental and essential principle of personal protection, the duty of every one towards himself. Obviously, this means, in the first instance, keeping away from sick people. In influenza in particular, it is well to remember that we are dealing with an extremely contagious disease. Since there is no way of telling whether a person has or has not influenza when it is in its earliest stages, it is wise to consider all colds, and all nose, throat and lung troubles, even though seemingly minor, as dangerous and contagious.

Those whose love or duty makes it necessary for them to care for the sick should take the greatest precautions. Only those absolutely necessary to the care of the patient should be admitted to the sick room. The neighborly habit of dropping in to cheer the unfortunate should be prohibited. Masks have here proven their efficiency and should be worn by all who come into direct contact with a disease like influenza. Dishes and any other articles used and contaminated by the sick person should be sterilized by heat before being used again, or else destroyed.

Almost everywhere spitting is recognized to be a dangerous practice, but it needs but a moment's thought to see that in the same category are the customs of careless coughing and sneezing, and kissing. In fact the latter are decidedly more dangerous. Attention has been focused on expectoration, but in truth, the "unscreened" sneeze or cough may provide a means for the direct and immediate transmittal of infectious material from one person to another.

In this connection it is well to bear in mind that contact diseases are to a large extent crowd diseases. Consequently, crowds should be avoided, not only indoor crowds but outdoor crowds as well. A "close-up" sneeze on the street may be just as unfortunate as a theater sneeze or one in the street car.

Sanitarians know that the hands are instruments of dangerous contact, and it is the constant effort of these men to bring this fact to the knowledge of the public. How

often during the past few months, when colds have been so common, have you shaken hands with another immediately after he has been using his handkerchief in the performance of a respiratory toilet? It is one of the most important lessons of modern hygiene, to keep our hands to ourselves, to keep our fingers away from the mouth and nose, and to insist on facilities for the thorough cleansing of hands before eating.

One of the means of conveying infection is by the use in common of the same utensils or articles. Cups, plates and towels, for example, serve as instruments for indirect contact between the sick and the well. This is true in the home; it may be true in the outer world in hotels and restaurants. No one would care to use another person's toothbrush; why, then, should you be willing to use his cup or wipe your face and lips on his towel?

Every one of these common practices is a potential risk of infection. It does not matter that they are supported by centuries of usage; they imply health risks. It is every man's duty to himself to educate himself in these fundamental principles of hygiene. When this shall be done the power of infection will be broken, and diseases of the communicable kind will be measurably better under control.

DONALD B. ARMSTRONG, M. D.

HORACE FLETCHER.

The news of the death of Horace Fletcher at Copenhagen makes it opportune to recall his teaching and estimate his influence. He had reached the age of seventy. During the recent stirring years we had heard less than formerly of his peculiar doctrines, but he had been earnestly engaged in philanthropic work abroad. Ten years ago he was much before the American public, a persuasive writer and a lecturer of singular charm. The members of his audiences invariably became enthusiastic disciples. It is necessary to add that they generally fell away by degrees and it may be doubted whether he has left any follower as uncompromising as himself.

Mr. Fletcher was not a rigorously scientific man but he was in touch with Doctor Chittenden, Doctor Benedict, and other leading experts in the field of nutrition. At forty-five years he found himself overweight, short of breath, and otherwise in poor condition. He was rejected by an insurance company. In his quest for health he hit upon the system which came to be known as Fletcherism. This was merely prolonged mastication, a conscientious effort to postpone swallowing as long as possible. An unsympathetic critic would have described it as dawdling over a meal until all interest in food was exhausted. But the eloquent advocate of this practice found new and delicate flavors in the attenuated mixtures which he held in his mouth and described himself as a "modern epicure."

Under the regimen Mr. Fletcher became a remarkably strong and active man for his years. At sixty he outdid college athletes in gymnasium tests of endurance; he went on long tramps and climbed mountains with the vigor of youth. He had considerably reduced his weight and was living upon a much smaller ration than formerly. There is nothing surprising in this simple fact, but it is of interest that he did not report the restless craving, faintness, headache, and malaise usually experienced by those who keep down their weight by careful restriction. The curtailing in his case was not deliberate, but the unconscious result of his protracted meals.

It is not easy to be sure how great a saving Mr. Fletcher effected in his total food allowance, but it was entirely clear that he soon came to have quite different tastes from his earlier ones. Professing to be guided solely by inclination and exerting his will only in long continued chewing he found himself a vegetarian. He always said that he should eat meat if he felt moved to do so but the desire did not return. He made a sparing use of eggs and legumes so that his diet illustrated what may be termed a low protein type. At one time he subsisted almost altogether upon grapefruit, baked potato with cream, and corn muffins—not an unattractive bill of fare.

The theory commonly advanced to account for the demonstrated efficiency of Mr. Fletcher's nervous and muscular equipment is somewhat as follows. He made the most of salivary digestion. His food passed to the stomach in a finely divided condi-

tion and was particularly well cared for. It was absorbed rapidly, leaving the least possible residue and limiting intestinal decomposition. His system was exceptionally free from poisons referable to this source. His remarkable endurance was due to the fact that he could begin any trial without a handicap of this nature which is perhaps the rule rather than the exception. Whether this reasoning is sound or not the connection between a very frugal diet with no more protein than necessary and a rare power to resist fatigue has seemed to be established.

Eighty years ago a considerable impression was made upon Americans by a man whose teachings coincided at many points with those of Horace Fletcher. This was Sylvester Graham whose name is still familiar because of its association with coarse, unbolted flour. Like his successor he was an able writer and speaker and mustered a considerable following. He also was a vegetarian and recommended a diet limited in amount and variety, to be taken without stimulants or strong flavoring principles, and to be eaten "slowly and cheerfully." All this is in close agreement with the more recent advice.

Graham taught that food-products should not be too carefully refined. He thought that processes of this kind might lead to the exclusion from the ration of substances indispensable to health. In this belief he anticipated in a remarkable way certain views which in our time have come to have abundant scientific support. Mr. Fletcher did not particularly urge the use of unrefined foods or the deliberate effort to have a large quantity of husks and resistant fibre in the diet. He advised the implicit following of appetite. The Graham system had a laxative reaction while the Fletcher régime was extremely constipating.

No doubt one of the chief reasons why the average Fletcherite tends to backslide is the want of time to carry out the program. An illustration in *Life* once showed a placid gentleman of this persuasion seated alone at a long banquet table. The other guests had gone, leaving their empty glasses and cigar butts at their places. The solitary diner was saying to the faithful waiter, "Now you may bring me the fish." Mr. Fletcher would have had families spend two hours at the midday meal. Conflicting engagements would often break in upon such a schedule. The word "muncheon" which he coined is very expressive. It is easy to caricature such a program, but we can hardly question the assertion that we habitually err in the opposite direction, eating hastily with minds distracted and spurring jaded appetites with highly seasoned dishes.

PERCY G. STILES, PH. D.

PUBLIC HEALTH BILLS BEFORE CONGRESS.

Two bills have recently been pending before Congress dealing with rural hygiene.

The first of these, H. R. 12634, was introduced by Congressman Jeanette Rankin, and proposes to create state boards of maternity and infant welfare. These boards are to consist of three members each, one of whom shall be the state health officer. A Federal subsidy is contemplated of $10,000 to each state which appropriates at least an equal amount. The supervision of the state boards and distribution of the funds to the states is to fall to the lot of the Department of Labor which would doubtless delegate the work to the Children's Bureau.

A second bill, H. R. 14185, was introduced by Congressman Lever. This bill proposes to carry out a somewhat broader rural hygiene program through the agency of the existing state health departments. A Federal subsidy is proposed, to be distributed through the medium of the Treasury Department, Bureau of the Public Health Service.

The Executive Committee of the American Public Health Association has endorsed the Lever Bill. Further, while it expressed approval of the aims of the Rankin Bill, the Committee deplored the creation of a new state agency for carrying out the objects of the Bill.

With reference to the Rankin Bill, President Frankel of the Association and Dr. S. Josephine Baker of the New York City Board of Health appeared at the hearing in Washington and presented the views of their respective constituents. It was urged that the Bill be amended so as to obviate the creation of new state departments. This is in the interests of coördination and opposed to division of health functions among different departments. The Committee reported the Bill favorably to the House.

The Lever Bill was referred some time ago to the Committee on Agriculture. In this it is proposed that the Secretary of the Treasury, through the Public Health Service, be authorized to coöperate with the states through their respective state boards of health in inaugurating and carrying on rural health work. A section of the Act defines "rural" to be a region with a maximum of 5,000 of population in a town or district.

There is the proviso that no payments shall be made under the Act unless an equal sum has been appropriated for the same fiscal year by the legislature of the state and that any state benefiting under the Act shall submit to the government each year through the State Board of Health a plan of proposed rural health work. The Act establishes under the Public Health Service a division of rural sanitation. Coöperation with the Department of Agriculture of the United States is made necessary. The Secretary of the Treasury shall establish such regulations covering the conduct of rural health work and the expenditure of moneys apportioned as may seem reasonable to him and each state board of health shall submit annually to the Secretary of the Treasury a complete report of the expenditures and the work accomplished for the year. The short title of this Act is to be "Rural Health Act." It is worthy of notice that although the Executive Committee of the American Public Health Association voted to endorse the Lever Bill, one member dissented: namely, Dr. W. C. Woodward, health commissioner of Boston. He objects not so much to the promotion of rural hygiene, as to the support of this work at the expense of the cities. His objections are based on careful thought and in order that the members of the Association may have the benefit of all considerations in the matter, his views are set forth in a communication on another page of this issue. H.

"INDIRECT CONTACT," INSTEAD OF "DIRECT."

In the January JOURNAL—page 25, et seq.—an absurd misprint succeeded in getting past the printers and the proofreaders in the office. It is important to call attention to it since the bearing of the article by Messrs. Lynch and Cumming might be misunderstood. The title of the article should have read, "The Distribution of Influenza by *Indirect* Contact—Hands and Eating Untensils," and the running titles on succeeding pages should read "Influenza by Indirect Contact." These titles in the JOURNAL were printed "Direct," and till one had begun reading the article would be seriously misleading.

DR. LIVINGSTON FARRAND.

The honors that have been conferred on Dr. Livingston Farrand both here and abroad are of a nature to bring satisfaction to every American heart, being recognition of the highest character for splendid achievements. His appointment by President Wilson to be chairman of the Central Committee of the American Red Cross is a well-merited honor and an acknowledgment of his leadership in the work of public health. Henry P. Davison, chairman of the Red Cross War Council, on whose suggestion President Wilson made the appointment, speaks of him, characterizing him as bringing into his new office a unique combination of qualities, and refers in a public statement to his work in France which has put American energy and initiative behind the attractive native methods of presentation in most important lines of public health education. President Vincent of the International Health Board, in a recent address in Boston, emphasized this praise in an outline of the great movement for the saving of infants and the war against tuberculosis which, together with Professor Gunn, Doctor Farrand has organized in France.

Doctor Farrand, New Jersey born, and with degrees from Princeton of A. B. and A. M., and from the College of Physicians and Surgeons (Columbia University) of M. D., has received honorary degrees, LL. D. from Colorado College and the University of Denver. He studied abroad, at Cambridge and Berlin; became a teacher in Columbia University from 1893 till 1914 and president of the University of Colorado in 1914 and almost from the beginning of his career was active in health work, being executive secretary of the National Association for Study and Prevention of Tuberculosis for a decade beginning in 1905. It was towards the close of this term that his

interests began in the American Public Health Association of which he has been a member since 1910. He was treasurer from 1912 till 1914 and in the year first named was appointed editor of the JOURNAL, with Professor Gunn for managing editor. It was at this time that the JOURNAL was published in New York. In accepting the

DR. LIVINGSTON FARRAND

position of president of the University of Colorado, Doctor Farrand was obliged to discontinue some of his activities in the East. He resigned from both offices in the Association and his mantle fell on Professor Gunn, then and till now a skilful and energetic co-worker. In 1917, Doctor Farrand was selected to head the anti-tuberculosis work in France under the combined support of the Red Cross, the International Health Board and the French Government. In this his constant aider and assistant was Professor Gunn, who remains in France carrying on the good works there established.

The JOURNAL is indebted to the *Boston Transcript* for the courtesy of the use of the picture of Doctor Farrand here presented.

ON TO NEW ORLEANS.

For the New Orleans meeting in October a central committee of the American Public Health Association was organized late in January, which has gone at once to the discussing of plans for the meeting. W. H. Robin, M. D., head of the New Orleans Health Department, is chairman; Oscar Dowling, M. D., chairman of the State Board, and W. S. Leathers, M. D., Health Officer of Jackson, vice-chairmen; F. R. Gomila, M. D., secretary, and H. E. Bernadas, M. D., treasurer. The other members of the committee are Hon. Martin Behrman, Mayor of New Orleans; W. H. Seeman, M. D., state and city bacteriologist; W. H. Knolle, M. D., president of State Medical Society; Paul J. Gelpi, M. D., ex-president of New Orleans Parish Medical Society, and J. J. Wymer, M. D., acting medical supervisor of schools. Mr. Thomas J. Hill, of the Association of Commerce, attended the meeting and assured the committee of the coöperation of the business men of the city.

Dr. Henry Mitchell, formerly secretary of the State Board of Health of New Jersey and for a long time a resident of Asbury Park, died at his winter home, Daytonia Beach, Fla., on Friday, January 31, in his seventy-third year. He was president of the American Public Health Association in 1899. Biographical notice will follow.

PROCEEDINGS OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

EXECUTIVE COMMITTEE.

Abstract of Minutes of Meeting in New York City, January 18, 1919.

President Frankel in the chair with six members in attendance. Doctor Evans, as chairman of the central committee of the Chicago Convention made a financial report showing total receipts not including exhibits, of $3,000, and expenses of approximately $1,400. He tendered in behalf of the Chicago Committee a check for $1,619.20. The Executive Committee extended to Doctor Evans and the Chicago Committee a hearty vote of thanks.

It was voted that the President and Secretary be authorized to establish an American Public Health Association News Letter. This is to be a monthly periodical, of four pages about nine inches by twelve, to be issued between the numbers of the JOURNAL and to be sent to all members of the Association. It is intended to present in it the lighter phases of Association life, comment on the movements of the members, minor matters in health administration in the different localities in the country, newsy items that are of transient interest, and the like, with the purpose of getting the members better acquainted one with another. The first issue will probably be about March 20.

The question of field secretaryship was discussed, it having been suggested that such an officer be appointed, to foster better acquaintanceship among members and on the part of the members with the objects of the Association. President Frankel expressed his views to the effect that instead of appointing such an officer at this time, it would be better to strengthen the resources of the Secretary's office. An increase of personnel would enable the shifting of details to properly qualified assistants, leaving the Secretary free to undertake the more important activities which properly devolve upon him. With such increase, the possibility of coöperation with state health societies and the bringing into greater activity of the directors of the American Public Health Association, two important steps in the desired direction will have been taken.

It was voted to increase the facilities of the Secretary's office and to undertake the development of work in the different states.

Doctor Evans presented suggestions that the American Public Health Association assist state health officers in obtaining proper legislation, but it was voted that while the Committee endorses the principle, it is probably inexpedient under existing conditions of the finances of the Association to undertake such work on any extended scale. A further vote authorized that communications be sent to Surgeon-General Blue and to Doctor Montizambert, expressing the desire of the Association to coöperate with state, provincial and municipal boards to whatever extent it can, with a view towards assisting them to obtain proper legislation.

The President of the Association pointed out the desirability of preparing model legislation for cities. It was further pointed out that on account of the amount of work that would devolve upon a committee for this, the Secretary thereof be accorded an honorarium. It was voted that the Chair appoint a committee on model legislation.

The Secretary reported a conference with the editor of a proposed new periodical on Industrial Hygiene, with which the JOURNAL might make some desirable affiliation. It was voted that the Secretary, Dr. W. C. Woodward and Dr. M. J. Rosenau be appointed a committee to act on the matter.

The Chairman reported to the Committee that House Bill No. 12,634 (Senate, 4,782) had been introduced by Congressman Jeanette Rankin, proposing Federal subsidy to new state departments which would be created for promoting rural hygiene of infancy and maternity.

Voted: That the Executive Committee of the American Public Health Association endorses the principle of such public health development but that it deplores the creation of a new state public health agency, in view of the existing state health departments. The following committee was appointed to take the matter up in Washington: Doctor Frankel, Doctor Evans, and Doctor Hurty.

Voted: That a copy of the proposed Rankin Bill be sent to state health officers together with an explanatory letter.

The Secretary reported that he was actively preparing health material for the fraternal insurance bulletins and that this would hereafter be sent monthly in partial consideration of the insurance corporate memberships. (The first instalment was distributed February 14.) He was authorized by the Executive Committee to proceed with this work and to canvass labor organizations and industrial organizations with a view to possibly furnishing them with similar material.

Voted: That the officers be authorized to conduct a campaign for sustaining memberships.

The President next spoke concerning the coördination of national health societies along the lines indicated by Doctor Vincent in his address.

Voted: That the President call a conference of the largest national health organizations with a view of formulating a basis of coördination, this conference to be informal and preliminary to a larger conference to be held early in June at the time of the meetings of the American Medical Association at Atlantic City, or of the National Conference of Social Workers.

The President, Doctor Evans, and the Secretary were appointed delegates to the first conference.

Voted: That the Committee endorse the plan of having state organizations on child hygiene, social hygiene, tuberculosis, and public health in general, meet at the same time as a step toward coördination.

Doctor Evans spoke concerning the proposed state health societies, recommending the bringing together of the special state societies either by federation or amalgamation, and advocating the creation of a central state health council.

On the part of the American Public Health Association he indicated the necessity of issuing membership certificates to members of the state branches, of organizing a section on personal hygiene with state branches, and of soon producing the popular health journal to serve as a connecting link between members of the state societies and the national Association.

Voted: That a draft of a model constitution for state health societies be presented to the Executive Committee, by Doctor Bryce and Doctor Evans, giving minimum requirements, and that a vote concerning this be taken by mail.

The annual meeting date proposed by the New Orleans Committee, of October 6–9, was accepted tentatively, being subject to change after a conference of Doctor Frankel with the New Orleans Committee about April 1. The idea was endorsed of a conference of governors and mayors on malaria with a view to stimulating the initiation of an anti-malarial program in the South.

It was voted to invite the Rockefeller Foundation to coöperate closely with the Association along these lines.

Voted: That the Executive Committee instruct the Secretary to send a cordial invitation to the officers of the societies and suggest that Doctor Dowling and the governor of Louisiana supplement these invitations.

Voted: That the Program Committee for the New Orleans meeting be instructed to select a group of men to present a tentative program for a personal hygiene conference with a view to determining whether the formation of a section on personal hygiene be warranted.

Voted: That Dr. J. N. Hurty, Dr. F. L. Hoffman, Dr. C. V. Craster, and Dr. J. A. Hayne, be appointed a committee to confer with the government authorities in furtherance of the aims of the resolution passed by the Association advocating that the army cantonments after abandonment be employed for public health purposes as tuberculosis hospitals, etc. (This resolution was published in the American Journal of Public Health.)

Voted: That the Committee on Influenza Statistics be authorized to correspond with the national and international statistical and other public health societies with a view to making an international survey of the pandemic of influenza.

The Secretary presented tentatively a plan for a copy and cut service for the health bulletins of state health departments. The question was referred to the Secretary with power to act.

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Proceedings of the Forty-Sixth Annual Meeting at Chicago, Ill., December 8–12, 1918.

II.*

General Sessions.

The First General Session of the Forty-Sixth Annual Meeting of the American Public Health Association was called to order by the President, Dr. Charles J. Hastings of Toronto, in the banquet hall of Hotel Morrison, Chicago, on Monday, December 9, 1918, at eight o'clock.

Letters were read by Dr. Peter H. Bryce of Ottawa, Canada, from Mexican and South American health officials.

The President introduced Dr. W. A. Pusey of Chicago who in behalf of the Chicago Medical Society welcomed the Association to Chicago. In voicing a cordial greeting Doctor Pusey called attention to the many attractive features of the western metropolis.

Dr. Arthur R. Reynolds of Chicago, who assumed the chair, in a brief introductory speech which told of the unity of nations against German autocracy, called upon a subject of Great Britain, a son of the Dominion of Canada, the President of the Associa-

*For Part I, including the Constitution, Resolutions and Influenza Discussions, see February Journal, pp. 130 *et. seq.*

tion, Dr. Charles J. Hastings, for his formal presidential address.

(The address of President Hastings has already been presented in the JOURNAL.)

Doctor Bryce spoke of the importance of a propaganda of public health, asserted that in this address there was the foundation of broad principles in every way fitted to carry out the work of the great Association. Doctor Bryce moved that the address of the President be referred to the Executive Committee with instructions that it be printed.

Next in order came two items of business,—the report on the amendments to the Constitution, by Dr. W. A. Evans of Chicago, and the appointment of the Committee on Resolutions, consisting of Doctor Bryce, Dr. Guilford H. Sumner of Des Moines, Iowa, and Dr. J. N. McCormack, Bowling Green, Ky. (The amended Constitution appears in the February issue together with the Resolutions as adopted.)

Following the formal session there was a reception tendered to President and Mrs. Hastings.

The Second General Session met in the banquet hall of Hotel Morrison on Tuesday, December 10, and was called to order at two o'clock by President Hastings, who introduced Surgeon-General Rupert Blue of Washington, the first speaker of the afternoon. (General Blue's paper was entitled "The Programme of the United States Public Health Service," and is to be found in the February issue of the JOURNAL.)

The second speaker of the afternoon was Col. V. C. Vaughan, M. C., of Washington, whose subject was "The Health of the Nation." (It is the intention of the JOURNAL to present an abstract of Colonel Vaughan's address at some later time.)

The successive papers at this session were: "The Future of the American Public Health Association," by Dr. Lee K. Frankel of New York City (see February issue of the JOURNAL); "The Future State Policy in Relation to Health and Welfare," by Dr. Frederick L. Hoffman of Newark, N. J. (presented in this issue); "School Hygiene a National Problem," by Dr. J. A. Nydegger, U. S. P. H. S., Baltimore, Md., who urged the need of a section on school hygiene in the Association, and "A National Programme for Physical Education," by Dr. W. S. Small, Bureau of Education, Washington, D. C. (printed in the November number of the JOURNAL).

In the discussion following these papers Dr. Milbank Johnson of Los Angeles spoke with reference to the amount various communities are spending on their public health. The communities will spend all that is necessary on public health, provided they think they can get value received. He spoke of the necessity of keeping the health administration out of the hands of politicians. He called attention to the fact that the war had emphasized the value of sanitation and that a rare opportunity exists in the thousands of men trained in this specialty who are being demobilized. He spoke of the necessity of casting aside in the future the narrow-minded, sectarian health organization of the past and in a "pull-together" spirit agreeing upon a proper form of health administration.

In discussing Doctor Nydegger's paper on School Hygiene, Dr. R. W. Corwin of Pueblo, Col., spoke of the trial of the unit school building in his state which has been found to be the best. This form, which is a single room in a single building, is not practicable in the city, but may be used in the country. Doctor Corwin advocates lighting from at least three sides and asserted that if all four sides of the building could be utilized it is still better. So far as cross lighting is concerned, he finds that it can be obviated by illumination from near the ceiling and spoke particularly of one building, where through poverty the people placed half of their school house below ground and built only the half above ground. They were, of course, obliged to light the building from the upper half of the room, and they found it worked admirably. He asserted also that window ventilation has been found by experts to be better than artificial cross ventilation. Doctor Corwin concluded his discussion with a reference to oral conditions of school children, and noted the large number of pupils with defective teeth.

In the discussion of the paper on Physical Education, Doctor Talbor of Fort Wayne, Ind., spoke of his experience as a member of one of the draft boards. He said that by that board more than five hundred men were examined for the purpose of securing one hundred and forty-three. He said, however, that these matters should be considered in the light of their environment; for example, with reference to the limit in height, a man under size may have a good mind and he may be just as available for his country as if he were of the prescribed height. He noted that the war has caused important modifications in what were formerly strict limits.

Dr. W. E. Moore of Sioux Falls, S. D., said that his board examined 1,600 candidates carefully and critically and he found that if he had hewed to the line he would have rejected about 60 per cent. He noted that there are more defects among rural boys than among those in the cities.

In closing the discussion, Doctor Small warned his audience against the acceptance of all kinds of crude statistics. He claimed that so far as the draft figures show anything with reference to the relative physical condition of the country boy and the city

bay, they show no difference. He called attention to the fact that the studies of former years on school children in the country were almost invariably made in districts that were famously bad, and had no controls in districts where conditions were known to be good.

The Third General Session of the Association met in the banquet hall at Hotel Morrison Tuesday, December 10, in the evening, President Hastings in the chair. The session was devoted to the organization of forces against influenza, and an abstract of it finds place in the February JOURNAL among the Influenza Discussions. The two regular papers included "The Value of Prophylactic Measures," by Dr. Hermann M. Biggs of Albany, N. Y., which in his absence was read by Dr. Matthias Nicoll, Jr., Albany, who first presented some opinions of his own, and the paper by Lynch and Cumming on "Distribution of Influenza by Indirect Contact—Hands and Eating Utensils."* An interesting report of the work of the Illinois Influenza Commission (see January issue) was the third paper of the evening which was filled with discussions of the general subject of influenza.

The business of the session included a vote that the section officers be instructed to close all section programmes on Wednesday so that Thursday could be left open for the discussion of influenza and that the Chair appoint a committee to recommend nominations for the seven members of the Board of Directors. This committee comprised Doctors Woodward, Chairman, Sawyer, Hurty, and Bryce. The Nominating Committee in its report recommended the following candidates, with terms expiring in 1921: F. L. Hoffman, LL. D., Newark, N. J.; J. T. Black, M. D., New London, Conn.; G. H. Sumner, M. D., Des Moines, Iowa; A. J. McLaughlin, M. D., Washington, D. C.; and C. W. Dowling, M. D., New Orleans, La. The following were nominated to fill the unexpired terms of Doctors Caverley and Landis, deceased, whose terms expire in 1920: W. H. Kellogg, M. D., San Francisco, Cal., and S. J. Crumbine, M. D., Topeka, Kans. These nominees were unanimously elected to the Board of Directors.

The Fourth General Session of the American Public Health Association met in joint session with the Chicago Medical Society in the rooms of the latter in the Marshall Field Annex, on Wednesday evening, December 11, and was called to order by President Pusey of the latter body, at eight o'clock. After a few preliminary remarks, he yielded the chair to President Hastings.

Doctor Hastings commented appreciably on the wonderful coöperation of the members of the medical profession with other workers. "I do not know of any other organization, although probably the ministers should be excepted, who would be willing to join hands with an organization that is intended to suicide their means of livelihood," he said. "The medical profession, however, appreciates the fact that the highest and noblest aim is not the curing of disease, but its prevention."

Doctor Hastings introduced Dr. C. M. Hincks, who presented his address on "Mental Hygiene."

The President commented on this paper as presenting lucidly a sadly neglected phase of preventive medicine. "We realize the fact now," he said, "that in a vast majority of cases the men who are dealt with in our asylums and cared for in our prisons should be dealt with by medical authorities and not police magistrates, and should be cared for in our hospitals. As we progress in civilization, and realize our responsibility to those less fortunate than ourselves, we find that some of the wisest men and best authorities in the world have said it is very difficult to determine just where sanity ends and insanity begins. We should hold a great deal of sympathy for the man who is a little beyond that line which many of us so closely approach."

On account of a slight indisposition on the part of Doctor Bishop, his paper on "Narcotic Drug Addiction" was read by Doctor Pease. Dr. Charles E. Terry of New York City supplemented the paper by a brief discussion.

The next paper of the evening was "Serum Treatment of Influenza and Pneumonia," presented by Dr. Frank W. Hartman, of Washington, D. C. An abstract of Doctor Hartman's paper is presented in the February JOURNAL, page 136, together with the discussions by Doctor Pietrowicz, Doctor Bundesen, Doctor Maloy, Lieutenant Melnikoff, and Doctor Tonney. Other speakers presenting impromptu discussions were Dr. A. A. Goldsmith, Dr. John D. Robertson, Dr. James S. Boyers, Dr. A. C. Hanney, and Doctor Rogers.

In returning the meeting again to the chairmanship of Doctor Pusey, President Hastings took occasion to thank the Chicago Medical Society for its courtesies and its members for the interesting discussions given by them. Doctor Pusey adjourned the meeting.

On Thursday morning, December 12, the special influenza conference which was arranged during the meetings and did not find place in the formal prearranged programme was called together at Hotel Morrison, with Dr. H. W. Hill in the chair. An abstract of this meeting will be found in the February JOURNAL, page 137.

The Fifth General Session included a luncheon at

*Published in the January Journal. The reader should note, however, an error in the title which reads "Direct Contact", instead of "Indirect Contact."

noon at Hotel Morrison, at the conclusion of which there was a question-box discussion. At this a considerable number of questions of interest to physicians and health authorities were discussed. These will be given place in a future issue of the JOURNAL and probably as the initial feature of a regular Question-Box department.

The Sixth General Session of the Association was called together at Hotel Morrison on Thursday afternoon at two, President Hastings in the chair. Dr. George E. Vincent, President of the Rockefeller Foundation, was the speaker, his address, "Team-Play for Public Health," finding place in the January JOURNAL.

In his words of appreciation President Hastings characterized Doctor Vincent to be omnipotent along the line of organization, administration, and oratory. He commented on the skill with which Doctor Vincent had "concisely sized up the situation" in the American Public Health Association, and said further that the Executive Committee and Board of Directors might have a certain conceit in themselves that they have been thinking along the same lines as President Vincent. "The plan of organization for the new American Public Health Association," he said, "because after the war there is to be a new heaven and a new earth, a new democracy and a new American Public Health Association, was that in organizing these different health societies we should coördinate all the activities under the same lines in the states. We want to establish powerful battalions in every state against the invisible foes of the state."

The Association then turned to regular items of business. The Secretary made note of the vote of the Executive Committee to incorporate the Association. He stated that the following members met in Boston last spring and applied for a charter under the laws of Massachusetts: Sedgwick, Whipple, Kelley, Slacker, Turner, Thompson, and the Secretary. The Secretary continued, stating that at a meeting of the Board of Directors the day before, this charter was presented in behalf of the petitioners to the Association and in order to incorporate this Association only the formal acceptance of the charter by the Association is necessary. It was voted that the American Public Health Association accept this charter as a corporation under the laws of Massachusetts.

Through its Chairman, Dr. Bryce, the Committee on Necrology reported the death of five members during the past year: Doctor Watson, a former Secretary of the Association; Doctor La Chapelle; Doctor Westbrook, President of the Association in 1895; Doctor Caverley, and Doctor Landis. It was voted that the Secretary convey an expression of the sympathy of the Association to the relatives of these members in the regrettable loss.

Doctor Bryce reported for the Committee on Resolutions. These resolutions as accepted by the Association find place in the February JOURNAL, page 132.

In behalf of the Committee on Milk Standards, Dr. C. E. North presented his report, which includes the standards adopted by New York City and the State of New York, while similar standards have been adopted by Indiana, and by the local government board for the Islands of Great Britain. Dr. North's report will find place in a future issue of the JOURNAL. The Association adopted the report. In commenting on the matter, President Hastings commented on the fact that the reduction in mortality noticeable throughout the continent during the last ten to twenty-five years is attributable more to the safe-guarded conditions of our water and milk than to anything else.

The Secretary reported that a plan had been presented to the Board of Directors in accordance with which the Association will offer to the returned war sanitarians the full service of the Health Employment Bureau. He noted how the great need of public health men has been evidenced by the recent epidemic of influenza. Many men returned from the war with excellent training in sanitary matters and these will be valuable aids in the administration of health departments. He emphasized the desire of the Association to help both the health departments and the sanitarians and requested them both to register in its files.

"The climax has now been reached," said President Hastings in coming to this portion of the exercises, "when I have the extreme pleasure and distinguished honor of installing one of the most capable presidents the Association has ever had. It has been my pleasure to be associated with him intimately during the past twelve months in a business way. I was convinced of the fact of his vision of the possibilities of the Association, his grasp of its details, and his realization of the ways and means by which its activities can be extended. Gentlemen, let me present to you our President for the coming year, my esteemed friend, Dr. Lee K. Frankel."

In his brief address, accepting the responsibilities of the president's office, Doctor Frankel referred to the fact that the Association has been giving for the past year or two the most careful and thoughtful consideration to the very problems raised by President Vincent. He said: "If we are to live up to the vision of public health as it is seen today, we must extend our activities very materially. It is for that reason, we have been attempting to feel the pulse of

public health opinion. We have tried to get in touch with large insurance corporations and with the fraternal orders, because they represent vast elements of the population, and we hope through the machinery they have already established, to bring home the result of popular scientific health to the mass of the people of the United States. We have known of the Red Cross possibilities and have been in touch with them as far as possible. We have now under consideration the attempt to try to reach the great labor organizations of the country in the hope that we may effect coöperation with them as well and through them carry the message for which this Association stands." He went on to say that the Association is not tied down by any institutional limits but is a fluid, mobile organization that can adapt its policy and plans as such change is required. "We have no axe to grind," he said. "We are not interested in any particular disease. As health officers and as representatives of the public, we are interested in one thing only; that is, in public health."

Doctor Hastings presented the newly elected officers to the meeting and declared these officers to be all duly installed.

For the concluding item of the meeting Doctor Bryce presented the following motion: "That the Association requests the Executive Committee to consider at once the matter of getting in touch with other public health associations with a view to coördinating and combining their activities in the interest of efficiency and economy in all matters relating to the public health." This resolution was adopted. The convention then adjourned.

Report of Committee on Retail Distribution and Marketing to Food and Drug Section, American Public Health Association, at Chicago, Ill., December 10, 1918.

Your Committee on Retail Distribution and Marketing submits the following report and recommendations:

1. The world-wide scarcity of food threatens an alarming amount of malnutrition. The Committee urges again the importance of developing as a health measure every possible means of eliminating waste and costs in the distribution of foods in order that rich and poor may share equitably. Many wasteful practices exist, due to commercial trade rivalry and badly coördinated methods of transportation, which the American Public Health Association should use every effort to eliminate. This is not a problem which is of concern to business organizations alone so that the American Public Health Association should take measures to have it treated in the light of those larger aspects which affect the well-being of the general public.

2. The change in the public attitude towards cold storage has already been pointed out to this Association. This Committee is agreed that the efforts which are being made at the present time to improve the conditions of cold storage from the point of production to the point when food is ready to leave the cold storage warehouse need to be supplemented by improved processes of distribution and marketing and especially by the education of the dealer and consumer as to proper methods of caring for cold storage products on removal from the warehouse and in the place of consumption.

3. The close of the war will undoubtedly retard and may even end the movement for Public National Kitchens, but the development and increase of private agencies for the preparation and distribution of cooked food, such as restaurants, delicatessen shops and bakeries will continue and will need still more an effective supervision and regulation from the hygienic point of view. In England, at the end of August, there were 623 national or voluntary kitchens and new plans were on foot for 185 more. Many had restaurants attached and approximately one million portions of food were sold daily. The results of this movement were, in brief, improvement in the habits of the community in the matter of feeding, elimination of waste, economy in use of food, provision of an adequate supply of food at low price and wholesome food for working classes in place of makeshift meals. The release of many women from the arduousness of domestic life enabled them to carry out work of national importance. While it may be expected that most of the women engaged in war work in this country will return to domestic life, it is also to be hoped that they will not again take up without radical modification the domestic preparation of food—a so-called "vestigial function" of the home—with all its waste of labor, material and fuel even when conducted by skilled workers. Such substitute methods as have been introduced in this country should have much more strict supervision from the hygienic point of view than has heretofore prevailed. Closer sanitary inspection of premises, utensils and processes and more rigid health examination of food handlers should be enforced in all factories engaged in the preparation of food and in all places where food is sold or served.

4. While recognizing the importance of home canning and preserving as a war measure your Committee would urge that this industry be resumed again in factories where sanitary conditions may be enforced and where there may be return to increasingly higher standards as to skill in technique, wages, hours and health of workers and hygienic environment. Your Committee would also urge the devel-

opment of methods of dehydration on a commercial basis. This should eliminate the cost of transporting and marketing large quantities of water, as well as the labor of cleansing and paring fruits and vegetables, often with inadequate equipment, in the home; greatly reduce the amount of space needed for storage, not only in markets but in houses and apartments; and result in the stabilization of agriculture, the conservation of that large proportion of fruits and vegetables which under present conditions never reach the consumer, and make possible a great improvement in dietetic conditions. Such a policy does not overlook the importance of retaining the preparation of food in the individual home whenever it can serve in the education of the young or conserve food which would otherwise go to waste, or be an actual pecuniary gain where the family income is so small as to permit of no free choice. It is, of course, to be understood that the energy released from technical and mechanical processes shall not be squandered, but shall be directed toward meeting those responsibilities of the home—the care of the child, the social values of the home and the civic relationships of the family—which assume new importance in the light of the tremendous changes which the world is undergoing.

MARION TALBOT, *Chairman.*
University of Chicago, Chicago, Ill.

REPORT TO SECTION ON VITAL STATISTICS OF COMMITTEE ON REGISTRATION AFFAIRS, AMERICAN PUBLIC HEALTH ASSOCIATION, AT CHICAGO, ILL., DECEMBER 9, 1918.

Death Registration.—The death registration area now includes 30 states, the District of Columbia, the Territory of Hawaii, and 29 cities in non-registration states, and relates to 77.9 per cent of the population of the United States.

The only additions to this area in 1918 are Illinois, Louisiana, and Oregon, while Tennessee was admitted in 1917 after the report for last year had been made.

Birth Registration.—The birth registration area, which was established in 1915, has been extended until now it includes 20 states and the District of Columbia, representing 53.1 per cent of the total population of the United States. The tests made in the New England states in some instances showed percentages of birth registration just above the standard required, but with the adoption of certain recommendations of the special agents of the Bureau, who conducted the tests, it is expected that birth registration in these states will soon be much more nearly complete. The war has awakened the people as well as the state officials to the necessity of having each and every birth registered.

Special Agents.—Special agents were appointed in Colorado, Connecticut, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, New York, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Washington, and Wisconsin, in addition to the six previously appointed. Such appointments have proved of distinct benefit to the Bureau in reducing to a minimum the time taken to obtain additional data on transcripts, and in educating persons reporting to fill in the certificates in detail.

WILLIAM H. DAVIS, *Chairman.*
Chief Statistician, Bureau of the Census,
Washington.

NOTE ON BILL H. R. 14185

In a communication to the Secretary of the American Public Health Association, Dr. W. C. Woodward, a member of the Executive Committee presents what may be taken to be a minority report with reference to the Lever bill—H. R. 14185—now before Congress.

Dr. Woodward writes:

"The enactment of such legislation would, in my judgment, be unwise and prejudicial to the best interests of the United States, from the standpoint of public health and, if I may be permitted to judge with respect to the matter, from statesmanship. Politically it may be expedient.

"The effect of the enactment of this bill would be to take money from the various states of the Union more or less closely in proportion to their relative populations and wealth, and to redistribute it among the states in proportion to their respective populations residing in the country and in towns and villages having a population of 5,000 or less. This is to be done under the guise of improving the health of dwellers in such rural districts.

"It is obvious that the proposition involves the taking of money from cities and towns having populations of more than 5,000 and paying it over for the benefit of rural communities. Manifestly this cannot be justified as a general proposition unless it can be shown that the cities and towns from which money is to be taken are able to meet all of the sanitary and hygienic needs of their own people, and no such showing has ever been made. While the unsatisfactory sanitary and hygienic conditions of many rural communities have been demonstrated, no comparative studies have been made to show that such conditions are in any way worse than are the conditions in our cities and towns, and I venture

the assertion that the conditions in the cities and towns of the United States generally are quite as bad relatively as are those in the so-called rural districts. I know, of course, that plea is frequently made that it is necessary to improve the sanitary conditions of the country in order to safeguard the health of the cities and towns, but the argument is specious, and it must be frankly recognized that the improvement of the health of cities and towns is quite as necessary for the safeguarding of rural communities as the improvement of the sanitary condition of rural communities is for the safeguarding of the health of cities and towns.

"If it had been shown that the backwardness of sanitation and hygiene in country districts and in towns and villages having a population of 5,000 or less was due solely to the poverty of those places, then the taking of money from the supposedly more prosperous sections of the country for the benefit of those destitute portions might be justified on the same principle as that which has justified the appropriation of $100,000,000 for the relief of the starving populations in Europe. It has not been shown, however, that the rural districts generally are destitute, and it is extremely improbable that destitution in rural districts is proportionately greater than destitution in towns and cities. The real reason for the appropriation seems to be not the inability of rural districts to bear this burden, but the simple unwillingness of legislators representing rural districts in state legislatures to enact the legislation that will accomplish the desired end; and it is proposed now through federal law and by draft on the federal treasury to subsidize such legislators and legislatures—it might almost be said bribe them—into the enactment of legislation for the welfare of their own people.

"Not only does the bill now under consideration propose to take money from every city and town having more than 5,000 population and to present it to farmers and to residents of towns and villages having less than 5,000 population, but it proposes further to use this money to force the state legislatures and county and town governments to draw upon their own funds for like purposes, when they would not otherwise do so. And it must be frankly recognized that every such draft upon the state or the county treasury for the benefit of the rural populations means that the resources of the state and county for health work among the people as a whole is correspondingly limited. Even though state or county taxes be increased to meet these special subsidized appropriations, yet the very increase in the state and county taxes will fall upon the population generally and diminish the ability of the state and of the dwellers in towns and cities of more than 5,000 to submit to further taxation for their own benefit.

"The bill is, as I have stated above, in my judgment vicious in the extreme. The very principle underlying it is one that is subversive of the independence of the state, but this principle has probably been too firmly fixed as a matter of federal and state policy to permit discussion. The special farmers' legislation enacted by Congress when it established farm loan banks, when it provided for federal aid for the construction of roads, and when it provided for the maintenance of county agricultural agents at the expense of the federal government, and the special aids to labor, provided through the enactment of the vocational educational bill, have all served to fix the principle of federal subsidies. This, however, does not justify any such federal levy upon state resources generally, but largely at the expense of the North and the East, and the redistribution of the amount thus raised among a limited portion of the population, not shown to be any more destitute nor in greater distress than are the dwellers in cities and the larger towns, and residing chiefly in the South and the West. If the principles of this bill are to be enacted into law the money raised by the federal government should be redistributed among the states in proportion to their population, or else in proportion to their contributions to federal revenues, so that every state may have equal rights as a member of the Union, and so that each state can determine for itself where its most urgent health needs lie, and appropriate accordingly."

Yours very truly,

WILLIAM C. WOODWARD.

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Don't Forget—New Orleans—October 6-9

ASSOCIATION NEWS

HELP WANTED

In order to help relieve the shortage of sanitarians, help-wanted announcements will be carried in this column until further notice. Copy goes to the printer on the fifteenth of each month. In answering keyed advertisements, please mail replies separately.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

Epidemiologist in Michigan city health department. Experience in diagnosis of contagious disease essential. Salary, $2,000. Address N. B. H. No. 189, care of this JOURNAL.

First-class, well-trained man for executive secretary of a Tuberculosis Association in Maryland. Address J. B. H., No. 191, care of this JOURNAL.

Health officer. Salary, $2,700. Address W. C. G., No. 192, care of this JOURNAL.

Laboratory technician in Connecticut Laboratory. Civil Service examination will be held for young women interested. Must be college graduate with three months in bacteriological diagnosis in public health laboratory or in medical college in war work. Salary, $800 per year. Address S. L. A., No. 193, care of this JOURNAL.

Health officer in southern town of between 25,000 and 30,000 inhabitants. Must be a physician. Salary from $2,000 to $2,400 per annum. Address W. D. H., No. 194, care of this JOURNAL.

Water and sewage analyst in Boston Laboratory. Must have good general chemical training and knowledge of the bacteriology of water and sewage, also about a year's experience, preferably in a hygienic laboratory. Salary, $1,500, or according to experience. Address S. W., No. 195, care of this JOURNAL.

Two public health nurses in Maryland. Salary in accordance with qualifications. Address C J. M., No. 199, care of this JOURNAL.

Public health nurses for rural districts in the South. One or two county positions and a few cotton mill community positions available. For county work nurses must possess initiative, public health training, and must be able to drive a car. Salary $100 and car furnished. Address D. A. R., No. 200, care of this JOURNAL.

NEW MEMBERS.

Elected to Membership in the American Public Health Association during February:

Association for the Prevention of Tuberculosis, Washington, D. C.

Rufus B. Blume, D. V. S., Cincinnati, Ohio, Chief Food Inspector.

James S. Boyers, B. A., M. A., M. D., Decatur, Indiana.

Cora B. Conklin, R. N., New Haven, Conn.

Frederick N. Crawford, B. S., M. S., Middletown, Conn.

George A. Dickinson, M. O. H., Port Hope, Ontario.

C. L. Ferguson, M. D., Cincinnati, Ohio.

Herbert A. Gehring, C. E., East Lansing, Mich.

Dwight F. Johnson, M. D., Newark, N. Y.

Thomas P. B. Jones, New York City.

Wm. A. Julian, Cincinnati, Ohio, Chairman Red Cross Home Service.

Robert W. Knox, A. B., A. M., M. D., F. A. C. S., Houston, Texas.

Bernard J. Kuly, M. D., Chicago, Ill.

Rachel W. Long, M. D., Holdredge, Neb.

D. H. McIntosk, M. D., C. M., Carleton Place, Ont., Medical Officer of Health.

Guy H. McKinstry, Ph. B., M. D., Pittsburgh, Pa.

Midwest Milk Manufacturers Association, Chicago, Ill.

Clarence R. Potteiger, D. S., D. V. M., Camp Meade Md.

Frank P. Righter, M. D., Richmond, Va., Medical Director Atlantic Life Insurance Co.

Sally W. Ruffin, Petersburg, Va.

E. C. Shaw, Akron, Ohio.

James F. Smith, M. Sc., M. D., San Francisco, Cal.

Ernest G. Stillman, M. D., New York City.

Ada S. Stokes, R. N., Cincinnati, Ohio, Supervisor Children's Clinic.

Charles S. Vivian, M. D., Humboldt, Ariz.

Agnes Walker, M. D., San Francisco, Cal.

Ruth West, A. B., Ph. C., M. S., Camp Upton, N. Y.

Thompson F. Wickliffe, M. D., Kinston, N. C., Health Officer.

In the list published in the February JOURNAL, page 146, for Herman Old, Manhattan, Kansas, read Lieut. H. Norman Old, Assistant Sanitary Engineer, U. S. P. H. S., Manhattan, Kansas.

Members of the A. P. H. A. Elected to the Sections:

SANITARY ENGINEERING.

William Herbert Bixby, Brig. Gen., 508 Federal Bldg., Chicago, Ill.
Chas. Raymond Cox, 310 Arcade Bldg., Hagerstown, Md.
R. L. Dobbin, 253 Hunter St., Peterborough, Ont.
O. E. Eckert, State Board of Health, Lansing, Mich.
J. Wm. Fehnel, 703 N. Main St., Bethlehem, Pa.
Myron E. Fuller, 7131 Cresheim Rd., Philadelphia, Pa.
Winfred D. Gerber, 133 W. Washington St., Chicago Ill.
Irwin D. Groak, 725 Monadnock Bldg., Chicago, Ill.
John A. Hunter, Amer. Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Charles D. Marx, Leland Stanford Jr. Univ., Stanford Univ., Cal.
John M. Mathers, Health Department, Akron, Ohio.
Paul S. Nice, 312 17th St., Denver, Colo.
L. C. Whittemore, 1216 E. 54th St., Chicago, Ill.

NEW HOME OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

This picture has a double interest. It shows the office of Secretary Hedrich in the new suite into which the increasing business of the Association has obliged the removal of its headquarters. The assistant is bringing to the secretary the great pile of signed certificates of membership, ready to go forward to the three hundred and twenty-six members who joined at Chicago. Mr. Hedrich looks serious as he views the added responsibility which this "big bunch" entails. Such additions mean, however, that the Association is coming into its own as the great national force in health education, and that it can now begin to undertake some of those plans which have been under consideration the past few years.

BOOKS AND REPORTS REVIEWED

Physiology and Biochemistry in Modern Medicine. *J. J. R. Macleod, M. B., Professor of Physiology, Univ. of Toronto, Toronto, Canada. (Assisted by Roy G. Pearce, B. A., M. D., Cleveland, O., and by others.) St. Louis: The C. V. Mosby Co. Pp. 903. Price, $7.50.*

The purpose of this publication may perhaps best be expressed in the language of the author, who states that "the laboratory courses in physiology are frequently given without any attempt being made to show the student the bearing of the subject in the interpretation of disease, or to train him so that in his later years he may be able to adapt the methods of investigation which he learned in the laboratory, to the study of morbid conditions."

Physical chemistry has revolutionized the aspect of certain phases of internal medicine, and its importance is not yet clearly recognized. Macleod's book embodies the modern principles pertaining to physiology and biochemistry and relates them to routine medicine. It ought to be of great value to the clinical investigator. It is not intended for a regular textbook in physiology or physiological chemistry, but rather for supplementary reference. Certain chapters ordinarily found in the standard textbooks, such as, the physiology of nerve and muscle, of the special senses, and of reproduction have been omitted entirely on account of their limited application in the general fields of medicine and surgery. On the other hand emphasis is laid on other subjects such as acidosis, nephritis, diabetes, the determination of hydrogen-ion concentration, colloid chemistry, etc.

The text comprises nine parts, which deal with the physicochemical basis of physiological processes, the circulating fluids, respiration, digestion, the excretion of urine, metabolism, the ductless glands, and the central nervous system. No one can peruse Part I without being convinced that the author has succeeded well in elucidating a subject which has always been difficult for the clinician to comprehend.

The physician who believes that he can get along well in his practice of medicine without consulting his "Physiology" would be surprised to learn from a closer study of this book how helpful a knowledge of modern physiology really is.

The clinical investigator and research worker will find this book a mine of up-to-the-minute information and as such it can be recommended unqualifiedly to the profession. The text, which is exceptionally well prepared, is accompanied by 233 illustrations, including 11 plates in colors.

Arthur Lederer, M. D.

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Clinical Medicine for Nurses. *Paul H. Ringer, A. B., M. D., Member of Staff of the Asheville Mission Hospital, Asheville, N. C., and of Biltmore Hospital, Biltmore, N. C. Philadelphia and London: F. A. Davis Co., illustrated, 1918. Pp. 8+286. Price, $2.*

This book plans to cover material given in lectures on medical diseases by Doctor Ringer to the nurses of the Asheville Mission Hospital. It consists of thirty-four chapters and a good glossary. There is a separate chapter devoted to such subjects as influenza, measles, diphtheria, syphilis and infantile paralysis.

The author does not go deeply into the treatment of disease with the exception of tuberculosis; these lectures are designed to form a basis for the instruction of nurses by physicians who will enlarge upon what has been given and will present their own method of treatment.

In the chapter on tuberculosis of particular interest is the author's account of the history of the disease. The author refers to ancient Babylonian records (B. C. 460–376) which give an intelligent description of tuberculosis. Then follows an account of the advance made in our knowledge of the nature of the disease until in 1882 Robert Koch, health officer in an obscure German town, discovered the tubercle bacillus, and proved conclusively that it was the sole cause of any and every form of tuberculosis. Of special value to the nurse is the author's clear and careful description of the vague and elusive symptoms of incipient tuberculosis, emphasizing the fact that no one symptom is conclusive, that all symptoms are rarely present, but the combination of any three or four is extremely suggestive.

The author discusses in detail the necessary precautions to be observed for the protection of the nurse and of the family of the patient from infection.

Mention should be made of the chapter on influenza which gives an interesting study of an outbreak of this disease in 1888. Hongkong was thought to have been the starting point of an epidemic that within one year visited nearly all parts

of the world. The great mass of evidence tends to show that the disease is transferred from person to person and, also, that infants and the aged seem less susceptible to infection than others. The symptoms of influenza are well defined.

This book is of great professional value; each subject is treated by the author in a clear and masterly manner. *May Bliss Dickinson, R. N.*

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Text-Book of Home Nursing. *Eveleen Harrison. 2nd Edition. New York: The Macmillan Co., 1918. Pp. 193. Price, $1.10.*

This book by Miss Harrison is a valuable one and much needed in many homes. The author has shown skill in making selections from a mass of material and in presenting the essentials. The chapter on the need of making a patient comfortable strikes the keynote of the book. All too rarely the nurse who is expert in carrying out the technical performance of her profession underestimates the value of the personal element. The author has inserted many directions with this point in view in a suggestive and convincing way.

A valuable feature of the book is definite directions to the nurse to so care for herself that she will be well prepared for her days' work even though her nights' rest be broken.

The chapters on Dietics and on Recipes for Invalid Cooking are especially worthy of note. While covering familiar ground the author has clearly and forcibly emphasized the importance of food in sickness. In the chapter on Nursing of Children the directions are especially clear and comprehensive. The treatment of croup is excellent.

This volume is a timely contribution to a subject of universal interest and will be of value not only to the nurse but also as a book of household reference. *May Bliss Dickinson, R. N.*

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Healthy Living, Principles of Personal and Community Hygiene. *C. E. A. Winslow, S. B., S. M., Professor of Public Health, Yale Medical School. New York: C. E. Merrill Co. Part I pp. 234. Part II pp. 376.*

The author has succeeded in presenting the principles of personal and public health in a manner which holds the interest of children, while at the same time he has made these two volumes very readable and instructive to older people. This has been accomplished in part by interjecting into the text, stories from the classics which are made to serve as illustrations of points which the author wishes to emphasize.

Analogies and illustrations are skilfully used to bring the facts home to the reader in an impressive way.

It is noticeable that in discussing sources and modes of infection, Professor Winslow gives due weight to the effect of the quantitative factor in the spread of infection, the importance of which is not always sufficiently appreciated by less experienced writers.

There is little one can say in criticism.

On page 164 of the first volume the author states that "the kinds (of microbes) that cause human sickness can live and thrive only in the human body." While this is true in the main, it does not take into account such organisms as cause bovine tuberculosis and anthrax and which are equally capable of causing the same disease in man.

The food costs given on page 80 of Volume I and in the appendix of the second volume, while correct when the book was written, are of little value today except for comparison.

The two volumes are a valuable addition to popular public health literature.

B. P. Rickards, M. D.

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A number of copies of the 1915 annual report of the State Department of Health are still available. Volume III contains many original articles by members of the staff, including the following and other more technical papers:

Schick Reaction in Infants. Henry L. K. Shaw, M. D., and Wm. E. Youland, Jr., M. D.

A Preliminary Inquiry into the Health Needs of Rural People of the State of New York. C. Josephine Durkee.

Reduction of Water-Borne Typhoid Fever. Theodore Horton, C. E.

The Relation of Sewerage Systems to the Prevalence of Typhoid Fever. H. Burdett Cleveland.

A Study of the Application of the Score System to the Sanitary Quality of Public Water Supplies in New York State. Theodore Horton, C. E. and E. Sherman Chase, C. E.

Emergency Chlorine Sterilization Plant for Public Water Supplies. E. Sherman Chase, C. E.

A Simple Method of Pasteurizing a One Quart Bottle of Milk. Ruth Vories.

Persons desiring to receive copies should write at once to the State Department of Health, Albany, N. Y.

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Within a few weeks the *Medical Review of Reviews* (New York) has purchased and consolidated with itself two other periodicals, the *Buffalo Medical Journal* and the *Southern Practitioner*. The *Buffalo Medical Journal*, founded in 1845 by Austin Flint, M. D., was the third oldest periodical in its class in the country and had been looked upon as a fixture in medical literature.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horowitz and Mayo Tolman.

Fellowship for Public Health Men.—The Harvard Medical School, in coöperation with the Boston Dispensary, offers a Fellowship to graduates in medicine who desire to pursue a course of study leading to the Certificate of Public Health in the School for Health Officers, or to the degree of Doctor of Public Health in the Department of Preventive Medicine and Hygiene.

Fellows are required to give about half their time to the treatment and supervision of the sick in clinics or their homes for the Boston Dispensary, and half their time to study or research at the Harvard Medical School. Appointments may be made for one or two years. The stipend is from $750 to $1,000 per year, depending on the details of the arrangement made.

Applications stating previous experience, references, etc., should be made to Dr. Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard Medical School, Boston, Mass., or to Michael M. Davis, Jr., Director of the Boston Dispensary, 25 Bennet Street, Boston.

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Vaccination.—A method of vaccination known as the subdermal method, introduced into the Canadian and British armies, has proved of decided advantage over the endermic method used in the American army.

A drop of vaccine is placed on the arm and the skin merely punctured in an area less than one-eighth of an inch square, three or four such areas about two inches apart being punctured on the left arm of the person vaccinated. As no blood is drawn the method constitutes a great saving since no bandages or dressings are required, nor is there any necessity to wait for the arm to dry. Only fifteen seconds are required for a complete vaccination by this method. In only one case out of every five hundred is any after treatment required.—*Minn. Health Journal*, Oct. 17, 1918. (*M. T.*)

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Infection through the Tear Ducts.—The efficacy of the face mask has been brought into serious question by the recent influenza epidemic when many nurses and others contracted the disease in spite of all precautions.

It is well known that in the pneumonic form of bubonic plague the necessity of precautions to protect the eyes as well as the nose and mouth is thoroughly well established. It should be obvious that infection, as mouth or nose spray from a coughing or sneezing patient, may fall directly on the eyes and be carried by the tear ducts to the nose and thence to the throat and mouth. This has been known to occur even in cases of diphtheria. May it not be that the many failures of the face mask can be attributed to infection conveyed in this manner?—*Minn. Health Journal*, Dec. 5, 1918. (*M. T.*)

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Sanatorium Treatment for Tuberculosis.—The home lacks the discipline to carry out the requisite phases of the treatment of tuberculosis, nor can it exercise the precautions necessary for the proper protection of the non-tuberculous associates. The patient nearly always overestimates his strength and, all too frequently, the proximity of business or responsibilities overcome his good intentions for self cure. Even in those cases where the patient gives himself up entirely to rest he frequently cannot obtain the necessary food or the service of a nurse.

The sanatorium on the other hand represents the best care that can be administered by trained specialists. There is no risk involved of infecting relatives and friends. His associates, through the bond of like affliction, are his friends. The patient is away from care and worry and his exercise is carefully regulated to guard against overexertion. The discipline insures the enforcement of the four essentials for cure—rest, good food, freedom from worry and fresh air.—*Minn. Health Journal*, Dec. 5, 1918. (*M. T.*)

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Danger in Rural Schools.—Insanitary and neglected conditions of rural schoolhouses are credited with the failure of 75 per cent of the men who have been rejected from the army upon medical examination according to Dr. J. A. Nydegger of Baltimore. (*M. T.*)

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Robbery De Luxe.—The National Association for the Study and Prevention of Tuberculosis is authority for the statement that not less than $20,000,000 is invested in the business of manufacturing and exploiting fake cures for consumption. It is also estimated that the annual income from these concerns and individuals is not less than $15,000,000. Of this amount, about $5,000,000 is spent for advertising, leaving the tidy sum of $10,000,000 as profit.

As no bottled goods have ever cured consumption, the $15,000,000 represents nothing but blood money robbed from the unfortunate.—*N. C. Health Bulletin*, Oct., 1918. (*M. T.*)

Plans and Notes Regarding Sanitary Devices Used in the War.—In a set of booklets received from the Office of the Chief Surgeon, American Expeditionary Forces, a large number of plans and notes regarding the appliances used to protect the health of the troops, is given. The booklets serve as excellent demonstrations of the care that has been taken to apply all the principles of modern sanitary science and preventive medicine that are known. In the booklet entitled "Sanitation in War," detailed, yet simple plans are shown regarding the following sanitary appliances:—latrine with fly trap; portable fly proof latrine; trench fly proof latrine; feces separator; urinals; incinerator and hot water heater; shower incinerator; feces destructor shed; smokeless feces destructor; horse manure incinerator; garbage separator and grease trap; fly traps; fly proof meat safe; improvised cold storage by permitting water to evaporate from the surface of the container, thus lowering the temperature of the stored food; refrigerator for fixed camp; company field kitchen, camp kitchen; delousing barrel for clothing by the use of steam; bathing establishment, consisting of undressing room; dirty underclothing storeroom, shower room, clean underclothing room, room for ironing and delousing uniforms and dressing room; clothes drier and vapor bath. In addition there are other booklets which show the detailed plans of tents, namely the Bessonneau or French Tent, the Marquee or British tent and the U. S. Hospital Ward Tent. That the war has greatly advanced our knowledge of field sanitation, is made very evident from an examination of the above mentioned plans. (*M. P. H.*)

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Results of Campaign against Venereal Disease in the Army.—The Surgeon-General of the Army has recently issued the results obtained from the campaign for combating venereal diseases. Reports indicate that approximately 85 per cent of the men entering the Army were already infected and that 15 per cent of all cases reported were contracted after enlistment.

Coincident with the introduction of preventive medicine measures, the annual venereal disease rate dropped from 155 cases per 1,000 in 1910 to 83.60 per 1,000 in 1915. These 83.60 were practically all new infections, as, at that time, men infected with venereal diseases were refused admission to the regular Army.

Under the Surgeon-General's program as outlined the annual venereal disease rate per 1,000 in the United States (new infection) has dropped from 83.60 per 1,000 in 1915 to approximately 20 per 1,000 in 1918.—*Social Hygiene Bulletin*, October, 1918. (*D. G.*)

Industrial Sanitation under Federal Health Service.—The United States Public Health Service has created the office of Industrial Sanitation and Medicine, to carry out the terms of a presidential order pertaining to inspections and investigations of industrial hygiene and sanitation in those establishments making war materials. It is also planned to conduct investigations into the mechanical safety of plants manufacturing ordnance material. All the work of the health and sanitation division of the Emergency Fleet Corporation has also been taken over by the Public Health Service.—*Municipal Journal*, November 16, 1918. (*M. P. H.*)

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Tuberculosis and the War.—If the experience of our Allies is to be used as a criterion the soldiers who are sent to tuberculosis sanatoria will leave very soon after their admission. These men desire to get back to their homes and friends, and there, their care, treatment and supervision will devolve upon the local authorities. Then there is a second group of cases to be cared for,—those that have been excluded by the draft boards.

This problem can be met by the establishment of local tuberculosis hospitals and sanatoria and in part by local dispensaries. Each community should provide at least one center for the free medical examination, treatment, advice and instruction of the tuberculous and those living in intimate association with them. In addition, there should be developed a system of home supervision for advice and aid to patients in their homes.—G. J. Nelbach, *Proc. N. Y. State Conference of Mayors*, 1918. (*D. G.*)

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Epidemiologic Studies of Poliomyelitis.—In *Public Health Bulletin* No. 91, Surgeons C. H. Lavinder, A. W. Freeman and W. H. Frost comprehensively review the history of poliomyelitis, and discuss very thoroughly the mass of data collected during the severe epidemic of the disease in 1916 in New York City and the Northeastern United States. The following seem to be some of the essential facts brought out in the report:

In 1840, Heine differentiated poliomyelitis from other forms of paralysis which affected children. This was followed in 1870 by the work of Medin of Sweden, who made clear the symptomatology of the disease. In 1905, Wichman, also of Sweden, studied the epidemiology with particular reference to the mode of transmission, and emphasized the importance of abortive cases and carriers in the dissemination of the virus. Later the disease was produced experimentally in monkeys by Landsteiner, Popper, Flexner, Lewis and others. Flexner and Noguchi also succeeded in growing the virus *in vitro*.

The etiologic factor is definitely a filterable virus which is readily destroyed by heat and also by the usual chemicals. It keeps well in glycerine and in weak phenol. The virus withstands drying and freezing and is highly resistant to external conditions. It has been found in the dust of rooms and has been transmitted experimentally by the biting stable fly and the bed bug. The ordinary house fly is also capable of transmitting the virus, but it serves entirely as a mechanical carrier.

Contrary to early opinion, the virus may attack any motor center in the body, and cause either permanent or temporary injury. Usually there is an acute febriie reaction, with gastro-intestinal disturbances of more or less severity, and indications of meningeal irritation. The disease may occur without paralysis. In fact it occurs frequently in the abortive form without impairment of the motor functions.

The virus has been found in various parts of the body of those dead with the disease. From those who are carriers, or who are ill with the disease or are convalescing, the virus has been found in the nasopharyngeal secretions. The virus may also be obtained from the washings of the rectum of those ill with the disease.

The disease is distributed over the entire world. It seems to be prevalent mostly during the summer and autumn months. Epidemics follow the main routes of travel. The mode of transmission is essentially by direct personal contact. The rate of incidence of the disease is independent of hygienic or economic conditions, or of race and nationality. Children under five are particularly affected. From 50 to 90 per cent of the cases occur among them. It is also true that more males are attacked than females, particularly in the higher age groups. The disease is also more prevalent in rural and semi-rural communities than in urban places. In the rural districts the higher age groups are affected to a larger degree than in the cities. Multiple cases in the same family seem to be rare. The incubation period for the disease appears to be less than one week.

The severest epidemic on record occurred in New York city during 1916. The average case rate for the city from 1911–1915 was 5.35 per 100,000 population. The case rate for 1916 was 185.2 per 100,000 population. (*M. P. H.*)

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Scurvy and the Juices of Vegetables.—Cow's milk possesses distinct properties against scurvy, but these are present in small degree in comparison with other antiscorbutic foodstuffs. Its value in this respect is further reduced after heating or drying. It is therefore advisable to provide some extra antiscorbutic material in the diet of infants nourished upon heated or dried cow's milk.

The value in this particular of various materials that might suitably be included in an infant's diet has been determined by means of experiments with guinea-pigs. Among fresh fruit juices that of the orange is easily the most suitable, and possesses a value about ten times as great as that of fresh grapes. Of the raw vegetable juices examined swede juice proved to be far the most potent, approximating in value to raw orange juice; the juice of carrots was found to be much inferior, and that of beet-roots failed to prevent scurvy in the largest dose (20 cc. daily) that could be administered to the experimental animals.—H. Chick and M. Rhodes. *Lancet*, December 7, 1918, 774. (*D. G.*)

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Prevention of Scurvy.—The antiscorbutic value of the juice of fresh limes as compared experimentally with that of fresh lemons has been found to be distinctly inferior. Volume for volume fresh lime juice possesses a potency of about one fourth that of lemon juice. Preserved lime juice was found useless for prevention.

These experimental studies have been supplemented and confirmed by a historical study of lime juice in connection with human scurvy. At the period when scurvy was eliminated from the British Navy by its agency the term was used to express the juice of lemons, and it was not until the second half of the nineteenth century that the juice of West Indian limes was adopted in the Navy and Mercantile Marine. The history of two Arctic expeditions, that of the "Investigator," 1850, and that of the "Alert" and "Discovery," 1875, has been carefully investigated. The former, supplied with lemon juice, experienced remarkable immunity from scurvy during the first two years of great difficulty and privation; the latter, supplied with lime juice, suffered severely from scurvy at the end of the first winter spent in the Arctic regions.—H. Chick, E. M. Hume and R. F. Skelton. *Lancet*, November 30, 1918, 735. (*D. G.*)

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Food and Scurvy.—In a memorandum on Food and Scurvy issued by the Food (War) Committee of the Royal Society the following points are emphasized:

The vitamine which will prevent scurvy is contained in a number of fresh foods: in largest amount in oranges, lemons, and fresh green vegetables; in considerable amount in roots and tubers, such as swedes, potatoes, etc.; and in small quantities in fresh meat and milk. It is deficient in all dried and preserved foods. It is destroyed by prolonged heating, such as takes place during stewing. Thus

potatoes in stews would be devoid of vitamine, but if boiled rapidly will still contain some quantity. Alkalies rapidly destroy antiscorbutic properties. Soda should therefore not be added to the water in which vegetables are soaked or boiled.

West Indian lime juice, as ordinarily prepared, is useless for the prevention of scurvy. Fresh limes have an antiscorbutic action, but their efficiency is only one fourth that of lemons. Pulses, beans, peas, and lentils in the dried condition have no antiscorbutic properties. If, however, the dried seeds are soaked in water and are allowed to germinate for a short period, one or two days, they develop the antiscorbutic vitamine. At the same time these pulses are also rich in the vitamine which prevents beri-beri and are, moreover, valuable foods.

The antiscorbutic value of fresh meat is very low in comparison with that of fresh vegetables and fruit. If fresh meat is consumed in large quantities, 2 to 4 pounds a day, scurvy will be prevented. Tinned and preserved meat possesses no antiscorbutic value. Frozen meat, while more valuable than preserved meat, must be considered inferior to freshly killed meat in this respect.

The destruction of the antiscorbutic properties depends rather upon the time than the temperature employed. All foods, especially vegetable, should be cooked for as short a time as possible at boiling point. Slow methods of cooking, such as stewing with meat or simmering below boiling point, should be avoided. Potatoes should be plunged into boiling water and the boiling continued for 20 to 30 minutes after the boiling point has again been reached. Frozen meat should be roasted when practicable.—*Lancet*, November 30, 1918, 756.

(*D. G.*)

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Infant Mortality Study in Waterbury, Conn.—The seventh of the series of infant mortality studies being conducted by the Children's Bureau of the U. S. Department of Labor, was made in Waterbury, Conn., from June 1, 1913 to May 31, 1915. Waterbury was selected because the city is in the registration area; because one third of the population is of foreign origin; because at the time, only a small proportion of the married women were engaged in industry; and because the essential industry, the manufacture of brass has not been represented in any of the previous infant mortality rate studies.

The average infant mortality rate from 1910–1914 inclusive was 146.5, the lowest being 134 in 1911, and the highest, 174.1 in 1913. The investigators studied the infant mortality among 2,144 live born infants which occurred during the first year of the study. Of these 263 died in infancy, the infant mortality rate therefore being 122.7. The highest infant mortality rate in any ward was 150.1 and the lowest ward rate was 70.6. The foreign population is composed largely of Italians, Irish and Lithuanians. The infant mortality rate was highest among the Lithuanians, the rate being 207.7 Among the Irish the rate was 184.6. Among the Italians, the rate was 109.9 and among the native Americans the rate was 97.9. It was found that 12.5 per cent of the births were not reported, during the period of investigation, also that 95.7 per cent of the deliveries of native mothers were attended by a physician against 52.2 per cent of the foreign mothers. Midwives were in attendance in 43.4 per cent of the foreign mothers, and in only 3.8 per cent of the native mothers. Although midwives are required to have a license, many were found who were unlicensed. There is no supervision over midwives.

One third of all the infant deaths was due to gastric and intestinal disease. The infant mortality was found to be greater in those homes that had insufficient incomes; where the surroundings were unsanitary and the housing improper; where the food and clothing were unsuitable and insufficient; where medical attention was lacking; and where it was necessary for the mother to be employed. In those families where the income was less than $450 per year, the infant mortality rate was 153. This rate did not drop below 100 until the income exceeded $850. Although the foreign-born families were almost always larger than the native families, their incomes were usually lower. In relation to artificial feeding, it was found that although the percentage of infants of native mothers that were artificially fed was high, yet the infant mortality rate among them was low. But the infant mortality rate among artificially fed infants of foreign mothers was high.—*Children's Bureau Publication No. 29.* (*M. P. H.*)

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Strike a Balance.—What one does after work is more responsible for brain fag and nervous exhaustion than is work itself. The essential thing for efficient well-being is to get a relaxation that really relaxes, that makes you forget the day's cares and cleans your slate for a fresh start tomorrow.

What that recreation is to be must depend on the individual, but it should be about as far removed from what one does in one's working hours as is possible. Find your recreation and then proceed to redeposit in your bank of nervous energy each day what you check out during working hours. Do not overdraw this account or you may soon find yourself a nervous bankrupt.—*N. C. Health Bulletin*, Oct., 1918. (*M. T.*)

Medical Inspection of School Children in Japan.—Japan realized thirty years ago that the health of her people was the main asset of the nation and that her ability to maintain her position among warring countries rested solely in the physical strength of her subjects. Consequently she set about to conserve, strengthen and build up her fighting resources in every way possible and one of her first acts of preparedness for the bloody struggle, which was to be staged some years later was, the inauguration of a complete system for the medical inspection of school children. It may be perhaps that some shrewd observer while studying her school system noticed "that a defective or feeble-minded child in the second grade was an indifferent pupil, but when in the fourth grade such a child became a mere lodger," and realizing that in an attempt to school an individual of that type the country was wasting its funds and the teacher her efforts, and in addition, the education of others was retarded; then the awakened authorities set themselves to the elimination of this waste and the reclamation of this element of defective youthful humanity. How well she succeeded is known to every one, for since that time her history has been a history of progress.—*Florida Public Health Notes.*

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Habits of Anopheles Crucians.—In a carefully conducted study of the habits of *Anopheles crucians* it was observed that this mosquito can subsist in nature in waters containing primarily non-living vegetable matter. As to seasonal distribution it was found that in the locality studied (Montgomery, Ala.) this mosquito appears early in April and continues breeding until late summer and possibly fall. The range of flight was investigated and it was noted that *crucians* was distributed about 7,000 feet from the source in numbers to be of sanitary significance, while from 7,000 to 9,000 feet the mosquitoes recovered were so few as to make the menace at this distance questionable. With regard to the choice of hiding places the great bulk of the specimens were found underneath houses or in stables, pig pens, and sheds.—C. W. Metz, *Public Health Reports*, December 6, 1918, 2156. (*D. G.*)

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Reconstruction of Education.—The following is the program prepared by Frederick Peterson for his address given before the National Education Association at Pittsburgh, July 3, 1918, on "The Reconstruction of the Race."

1. The teachers themselves should be given better conditions for their health and fuller instructions in all that has to do with the laws of health.

2. Every city and country school should be made sanitary and kept so, and the school and its grounds should be as beautiful as possible, not only for the benefit of the teachers and pupils, but as an example to all other citizens who are beginning to use the school more and more as a community center.

3. Every child should be regularly weighed, measured and examined, and a health record kept, which should accompany him throughout his school life. It should be the duty of the authorities to see that the defects of our young citizens are corrected, and disorders of growth and nutrition remedied. As malnutrition is one of the serious conditions, a hot lunch should be made available for every child and every teacher. The health examination should include dental inspection and treatment.

4. Each school should have adequate provision for physical training, gymnasiums, athletic fields, playgrounds, gardens and shops, together with especially qualified instructors in physical training and vocational fields.

5. Finally with the foregoing foundations, there should be a thorough system of instruction in all matters pertaining to health with special emphasis on health problems rather than disease, in physical and mental habits, in personal hygiene, in public health and sanitation, in methods to avoid communicable diseases, in the responsibilities of parenthood, and in all that relates to nutrition and growth, including foods and food values and food habits.—*Journal A. M. A.*, Aug. 17, 1918.

(*M. T.*)

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As You Would Have Done Unto You.—How many can say: I have saved the health and lives of many because I have confined my germs to myself; I have spit with precaution into my handkerchief; likewise I have guarded my mouth and nose in sneezing and coughing and destroyed all my infectious discharges. My lawn, the lawn of my neighbor, and the public highway have not been my spitting grounds, nor have I sneezed and coughed in the face of my neighbor. In so doing I have deprived myself of no pleasure which I otherwise would have had. I have sacrificed nothing but have saved many from colds, la grippe, influenza and consumption.—*Minn. Health Journal*, Dec. 5, 1918.

(*M. T.*)

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Importance of Prenatal Care.—Results of prenatal service in New York and Boston for 1914 and 1915 indicate that prenatal nursing service will reduce infant mortality for babies under one month old 33 per cent and for babies up to one year, 40 per cent. In 1914 68 per cent more babies were saved in wards which had the advantage of prenatal service than in the wards which did not have it. (*M. T.*)

STATE HEALTH NOTES.

Canada.—The first steps were taken early last month towards the organization of a social health program for Canada by the assembling at Ottawa of a most distinguished body of Canadian health ministers, health officers and presidents of public-spirited health societies. One of the resolutions passed at the afternoon session was in favor of the immediate establishment of a federal board of health. Another of the resolutions sets forth what the Canadians deem to be the essential features of the problem of venereal disease as it exists in the country. The elements covered by the resolution include compulsory notification, compulsory treatment, standardized treatment, authority to examine suspected individuals, prevention of quack treatment and quack remedies with their advertisements, and the right of entry of public health authorities. Beyond this the assembly passed a resolution that advocates the amendment of the Criminal Code of Canada, so that a person who is suffering from venereal disease in a communicable form, who knowingly or by culpable negligence communicates such disease to another person, shall be guilty of a criminal offence. Still another resolution suggests that the Dominion government render financial assistance to the provinces in fighting these diseases, and another still advocates the examination of seamen coming within the purview of the Immigration Act. Still another recommendation by this conference was that the government assume the supervision of production of salvarsan and similar remedies.

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Illinois.—The influenza situation in Illinois is now generally under control, although a third epidemic is reported in a number of communities. The type of disease seems to be milder and the death-rate lower than during the months of October, November and December. The impression that children are immune to the disease, which became current early in the epidemic, is now shaken by the fact that in many communities children were afflicted more than adults. The supposed immunity of tuberculous persons has also been open to question since reports have been received from at least one tuberculosis sanatorium in Illinois of the infection of a considerable number of tuberculous persons, with high mortality.

Through the efforts of the Division of Social Hygiene of the State Department of Public Health, large numbers of Illinois pharmacists have agreed to discontinue counter prescribing and the sale of nostrums for the treatment of venereal diseases. This has developed an embarrassing situation in some communities where all of the physicians refuse to treat this type of human ailment. The Department of Public Health is making special effort to induce physicians to coöperate in the state and federal plan by accepting patients of this type.

The State Department of Public Health has just issued an entirely new circular on the "Cause, Prevention and Treatment of Pulmonary Tuberculosis." In addition to the customary information relative to the disease, this circular contains specific information in regard to the out-of-door care of consumptives, and a complete directory of all public and private sanatoria and tuberculosis dispensaries in Illinois.

The Division of Diagnostic Laboratories of the State Department of Health reports a remarkable increase in requests for examination of sputum specimens. This is believed to be due to the respiratory disturbances left in the wake of the influenza epidemic. There has also been noted a very large increase in the number of Wassermann tests, since the ruling by the Department that all such tests will be made in the future without charge, for rich and poor alike.

Never in the history of the State Department of Public Health, has there been so low an incidence of scarlet fever, diphtheria, measles, whooping-cough and chicken-pox throughout the state of Illinois as at the present time. This striking decrease in the contagious diseases of children is attributed to the very general adoption of medical school inspection and the employment of school nurses necessitated through the rules of the State Department of Public Health for all schools that desired to remain open during the recent epidemic of influenza. A very large number of communities have permanently established school inspection and school nursing service as a result of this striking showing.

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Minnesota.—With reference to reporting venereal disease, a professor in the school of medicine of a state university told one of his classes that he would himself never report a case of venereal disease and advised them never to do so.

The executive committee of the medical college unanimously condemned the utterance and stand taken by the professor and despite his high standing, made it plain that they would tolerate no such expression of opinion from one of their staff.

There have been a few instances where newly commissioned officers of the Medical Corps of the army have made similar statements before medical bodies. These officers have been uniformly disciplined with severity by the Surgeon General's office.

The reporting of venereal disease is but passing through the same stages that the reporting of tuberculosis passed through not so many years ago. The

older physicians who will remember the opposition to reporting tuberculosis should bear well in mind the change in attitude and should guide the younger men to full reporting.—*Minn. Health Journal*, Dec. 5, 1918. (M. T.)

Winter sports for children have been instituted in Minnesota. Last summer over 150 boys and girls, of all ages under ten, were taken daily to the public parks of Minneapolis by workers of the Anti-Tuberculosis Committee, and regaled with supervised play and unlimited crackers and milk. All were frail and anemic, and were gathered from the congested districts of the city; but a survey made by the visiting nurses has revealed the fact that not one of them developed influenza or pneumonia during the recent severe epidemic. The nurses attribute the children's powers of resistance to the days of healthful activity in the open air. As a result of this satisfactory experiment, the Children's Year Committee of the Woman's Council of National Defense is providing supervised skating and other winter sports and games for all school children under sixteen this winter. Competent supervisors have been engaged, and skates, skees, sleds, and toboggans have been furnished through the parents-teachers associations.

"If supervised summer play proved so beneficial, why not supervised winter sports?" the committee asked itself. And this is the answer.

New York State.—Many rural communities in New York State have been without physicians because of death, permanent military appointments, or other causes. As a result of letters received from a number of such communities, the State Department of Health has undertaken to put the authorities in such places in touch with physicians desiring rural locations. This has been accomplished by advertisements in medical journals and newspaper publicity. To date replies have been received from 96 physicians located in 20 different states and names have been sent to 21 communities.

One of the largest nuisances investigated in the history of this Department is that occurring along the Riverside Drive section of New York City arising out of offensive odors and fumes generated in a number of large industrial plants, some eight in number, three of which are directly across the Hudson River in Edgewater, N. J.

The nuisance affected some 200,000 people in the city and was made the subject of investigation and reinvestigations in the years 1913, 1915, 1917 and 1918. Following each of these investigations and as the sources of nuisance were determined, recommendations were made and improvements carried out until in 1918 only two plants remained responsible for the conditions of nuisance, namely, the General Chemical Co., and the Corn Products Co.

As a result of these investigations, special legislation in 1917 and a series of hearings before the State Commissioner of Health in 1917 and 1918, these two plants have been induced to design and now have under construction improvements which will largely if not entirely eliminate these final sources of objectionable odors and fumes.

A sanitary survey was recently made by the Engineering Division of the greater portion of the village of Highland Falls. This survey was made for the purpose of bringing about improvement in sanitary conditions in the district adjacent to the government reservation at West Point. As a result of the inspection and of the serving by the local health authorities of preliminary notices to owners of property on which unsanitary conditions were found, some 80 per cent of these nuisances have been abated.

That portion of the sanitary code adopted by the Board of Health of New York City, which requires that the names of the ingredients of proprietary or patent medicines be registered in the Department of Health before such medicines can be sold, has been declared invalid by the New York Court of Appeals.

The court shows that many concerns have imported stocks on hand of which it would be impossible to learn the ingredients and that consequently the law becomes confiscatory with regard to these stocks. The court, however, shows that the purpose of the law is the preservation of public health and safety and is well within the limits of police power and that if the law is amended so as not to cause the forfeiture of existing stocks, it can be made valid. (M. T.)

The whooping-cough regulations, recently adopted by the Hornell Board of Health, require the placarding of the house and the exclusion of persons not immune to the disease. The patient is allowed the liberty of the yard or premises provided he avoids contact with non-immunes and wears an arm band with the words "whooping-cough" printed in red ink.

West Virginia.—The traveling health exhibit of the West Virginia State Department of Health has been put under the charge of Charles C. Stockman, 2d, as Director. Mr. Stockman came to West Virginia from the Massachusetts Institute of Technology where he graduated.

With him is Mrs. Jean T. Dillon, graduate nurse of broad experience in public health work, who has been appointed Director of Child Welfare and Public Health Nursing.

Mrs. Leni McWhorter Jenkins is with the car assisting in the organization of Women's Clubs and furthering the interest in the public health.

Dr. Carl F. Raver, a graduate of the University of Michigan and one time coöperative health officer of La Salle, Peru, and Oglesby, Ill., has been appointed Director of the Division of Preventable Diseases and Assistant Health Commissioner with the West Virginia State Department of Health.

(M. T.)

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Texas.—The State Public Health Commission at its fourth meeting, which was held in Dallas, voiced a plea for a special bureau of child hygiene. The suggestion is that there be established such a bureau to include public health nursing as one of the departments of the State Board of Health.

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Wisconsin.—The Wisconsin State Board of Health is seeking from the Legislature appropriations for the establishment of bureaus of child welfare and contagious diseases, and for venereal disease control to meet the offer of the Federal government. In the latter field work already has begun. The Board is supporting a bill of far-reaching effect relating to pollution of streams and water supplies, and creating provisions for preserving the purity of the waters of the state; providing for supervision and control by the State Board of Health over water and ice supplies, sewerage, trade wastes and refuse disposal; and for the maintenance, alteration, extension, construction and operation of systems relating thereto.

Other health measures sponsored by the Board at this session are as follows: Exempting local health officers from personal liability in the performance of official duties; for reports to the Board by public health nurses; authorizing local boards of health to establish quarantine and close schools under certain conditions; registration of births, deaths and marriages, recording of which has been neglected or delayed. (L. W. B.)

The Wisconsin State Laboratory of Hygiene has issued a general warning against a threatened outbreak of rabies in Wisconsin, particularly in the counties of Milwaukee, Waukesha, Dane, Washington, Jefferson, Racine, Vernon, Ozaukee, Rock and Walworth.

Under the auspices of the State Board of Health, the Wisconsin Legislature witnessed the War Department's film, "Fit to Fight," describing the venereal disease peril. Captain E. R. Beckwith, U. S. Army, described to the lawmakers the need for control of venereal diseases among the civilian population.

A far-reaching bill extending the State Board of Health's control over water supply and sewerage systems and ice supplies of the state is pending in the Legislature. The Milwaukee Health Department and the State Board coöperated in its drafting. Plans and specifications must be approved by the State Board before a water or sewerage system can be installed or material alterations or extensions made, according to the bill.

Compulsory health insurance legislation was not favored by the special legislative committee appointed by the 1917 Wisconsin Legislature to investigate the problem. In its report to the present Legislature the committee, headed by former Senator W. W. Albers, Wausau, Wis., recommended preventive health measures as more likely to accomplish results. The committee's recommendations include:

More liberal appropriations for the State Board of Health and local health boards, including appointment of a paid county health officer in every county.

More support of state health laboratories as centers of preventive medicine and aids to the development of "group" medicine.

Universal introduction of physical and medical examinations in the schools.

Establishment of district nursing centers.

A program for reduction of infant mortality and encouragement for creation of a bureau of child welfare, as proposed under the present appropriation plan of the State Board of Health.

Liberal encouragement for the development of financial community support of hospitals and sanatoria.

A comprehensive housing plan adapted to the future needs of the industrial population.

Inclusion of occupational diseases in the workmen's compensation act.

More active supervision and control by the state insurance department of voluntary insurance undertakings providing relief for wage-earners during prolonged periods of illness.

Exclusive of the normal mortality for pneumonia and influenza, 7,236 deaths are attributed to the epidemic in Wisconsin during October, November and December, 1918, and the death-rate for that period was 21.8, the highest ever recorded in the state. During the calendar year 1918 there were 34,469 reported deaths, exclusive of stillbirths, representing an annual death-rate of 13.6 per thousand, or more than 3 per thousand higher than any rate recorded in Wisconsin. Of influenza and pneumonia, 102,733 cases were reported in 1918. Tuberculosis statistics show that the mortality rate per 100,000 declined from 107.8 in 1909 to 91.6 in 1918 in this state.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst, R. P. Albaugh, and P. M. Holmes.

Sanitary Conditions in Labor Camps.—California has a Labor Camp Sanitation Law which has revolutionized the housing and living conditions for some 75,000 migratory workers. This is the result of the efforts of the State Federation of Labor. In contrast to former conditions, over forty per cent of all the camps inspected have been brought up to a standard exceeding the law's requirements, while last year's inspections showed seventy-four per cent of the camps were in compliance with the law. Employers of labor have gone on record expressing satisfaction in the increased efficiency of their working force, while California has been singularly free from the labor difficulties in lumber regions and construction camps of the Pacific Northwest, since the camp sanitation policy has been in force.—Paul Scharrenberg, *American Federationist*, October, 1918, pp. 891–892.

✱

Medical Service in the Conservation of Industrial Man Power.—Dr. Selby bases his observations on the result of personal inquiries made at 170 industrial establishments for the U. S. Public Health Service. The modern employer realizes that the most capable workman is (1) healthy, (2) free from worry, and (3) engaged in work he likes and is able to do, rapidly and well. The specific duties of an employer who wishes to develop a permanent, capable working force are included under 14 headings, in all of which the special knowledge and skill possessed by physicians peculiarly fit them to assist employers. Physicians who have gone into the firing line of industry are just as greatly needed there as they are on the firing line of battle. A special training for industrial medical service should be devised and have government authorization and supervision. Competent medical men, first aid men and nurses should be given intensive courses of training as a preliminary.—C. D. Selby, *Jour. A. M. A.*, Aug. 3, 1918, pp. 333–336.

✱

Modern Industrial Medicine.—The old-time company physician has passed and the day of the modern, highly-trained industrial medical specialist has arrived. Since the withdrawal from industry of large numbers of men for military service, physically perfect men are becoming very few. It is important that each worker should be placed at work compatible with his physical condition, in order to use what talent he possesses and see that his days of productivity are not shortened. At Dr. Farnum's plant it is maintained that every man who is not a menace to his fellow-workers by contagion is capable of doing some work safely and of doing it well. One sees in some plants in an hour a hundred jobs filled by apparently able-bodied men, which could have been done equally well by a cripple or a defective. In his plant the superintendent of safety has but one leg, but by that very token he is more valuable as a safety man than if he had two legs. The author finds that the labor turnover varies inversely as the physical defects of the laborer and that the worse the physical defect, the less the accident incidence. The re-establishment of the returned crippled soldier lies in the hands of the industrial medical men.—In the discussion of this paper, Dr. J. W. Schereschewsky pointed out that a man who has lost a leg may not have his physique impaired thereby. His digestive apparatus and vascular system may still be far superior to that of one who possesses all of his limbs. When we refuse employment to such men we disregard a source of potential energy.—C. G. Farnum, *Jour. A. M. A.*, Aug. 3, 1918, pp. 336–337.

✱

Improved Health of T. N. T. Workers.—In the six months, October, 1916, to March, 1917, there were 169 cases of serious illness called to the attention of the Minister of Munitions, whereas in the corresponding period for 1917–1918 there were forty-two cases. In April of this year, four cases, and in May, only one case. This result is due to close medical supervision of the workers, with improved methods of working, and the substitution of mechanical processes wherever possible.—*London Letter, Jour. A. M. A.*, Aug. 10, 1918, p. 484.

✱

Reconstruction of British Labor Regulations.—It has become evident in England that one of the most urgent needs of social reconstruction is the universal application of the principle of the protection of the standard of life. This is embodied in the factories, workshops, merchant shipping, mines, railway, shop, truck and trade board Acts, together with corresponding provisions of the public health, housing, education and workmen's compensation Acts. These imperfectly drafted and piecemeal statutes admittedly require extension and amendment at many points. They should be supplemented by new legislation providing among other reforms in industry the general reduction of the working week to forty-eight hours, securing to every

worker at least the prescribed minimum of health, education, leisure and subsistence. The system of a legal basic wage in its various forms needs to be so extended as to ensure to every worker, irrespective of sex, a sufficient wage to provide for all the requirements for a full development of body, mind and character. No nation has any right to exclude any class or section whatever from these rights.—*Public Health Journal*, September, 1918. (*S. G.*)

✱

Medical Treatment for Wage Earners.—At a meeting some time since the American Hospital Association recognized social health insurance to be a matter of prime importance in the social policy of the world. One of the resolutions included a request to the board of trustees to make a study of health insurance in its relations to hospitals and dispensaries and to afford assistance in the preparation of plans and of bills for legislatures.

Members of the national and state hospital associations are urged to coöperate wherever possible in effective solution of health insurance problems.

"The proper solution of the problem, including the formation of legislative bills and the administrative organization of the plan," the resolution states, "are of prime importance to the hospitals and dispensaries for the reason that the fundamental basis of such insurance should be the medical treatment and rehabilitation of disabled wage earners."

In his favorable report to the convention as chairman of the Committee of Social Insurance, Dr. Thomas Howell, superintendent of the New York Hospital, said the medical profession should insist upon participation, together with employers and employees, in the shaping and administering of health insurance laws, now proposed in many states.

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The Wearing of Face Masks to Stop Germs.—Drs. Doust and Lyon, M. C., U. S. Army (*Jour. A. M. A.*, Oct. 12, 1918, pp. 1216–1219), found that during ordinary or loud speech, infected material from the mouth is rarely projected to a distance of four feet, and usually less. During coughing infected material may be projected at least ten feet. Masks of coarse or medium gauze of from two to ten layers do not prevent the projection of infected material during coughing. Such masks are worthless, therefore, in preventing the dissemination of respiratory infections. A three-layer buttercloth mask is efficient. Dr. Geo. H. Weaver (*Jour. A. M. A.*, Oct. 26, 1918, pp. 1405–1407), found that six layers of fine gauze (mesh 40 to 44) tried on a patient held back almost all the bacteria during explosive coughing or expiratory efforts. The nurses in Durant Hospital are instructed to wear two super-imposed masks each composed of three layers of this fine gauze when attending cases of virulent infections of the respiratory tract. The gauze used is absorbent and is probably preferable to buttercloth. The large particles of saliva are probably more dangerous than the finer ones, because they contain more bacteria and more toxic substances which may act on the mucous membrane of the exposed individual, so as to favor the growth and penetration of the bacteria. Masks tend to check the spread of these diseases since they interfere with putting the hands to the mouth and nose, and thus remove an important mode of infection. Many family epidemics might be limited by the use of them. Emphasis must still be placed on proper sterilization of eating utensils, destruction of all discharged matter, avoidance of contaminated foods, and special care regarding the washing of the hands after each handling of the sick.

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Color Blindness.—The results of the studies made by Dr. Collins for the U. S. Public Health Service were to the effect, that the usual methods for detecting color blindness with test skeins, such as Jennings and the Holmgren test were confusing and unreliable and should be rejected. The Jennings test is not adapted for testing sailors and trainmen and its use in this way is dangerous. The test is quite inferior to the lantern tests in which specially prepared colored glasses are used. Furthermore, modifying glasses may be placed in front of the colored glasses to stimulate mist, fog or rain, and produce effects on signal lights in actual practice.—Report on studies of Dr. Geo. L. Collins, *Jour. A. M. A.*, Sept. 28, 1918, p. 1086.

✱

Medical Studies in Aviation.—A most important series of articles bearing upon the relation of air, particularly oxygen content, to the physical well-being of the individual appears in the issue of the *Jour. A. M. A.*, for Oct. 26, 1918. The papers represent the results of investigations made at the Medical Research Laboratory, Air Service, Mineola, L. I. While the studies were made for the purpose of the protection of aviators against the effects of high altitudes, low barometric pressure and deficiency of oxygen, they are directly applicable to a number of problems in industrial medicine. The re-breathing apparatus perfected by Yandell Henderson and E. G. Seibert is adaptable to physical examinations, where it is desirable to test and measure the "functional power of the heart." The apparatus is fundamentally a measurement of vitality in its use and can be made to determine the qualities "condition," "training," "fitness," "out-of-training," and "staleness." E. C. Schneider gives the results of physiologic observations and

methods; James L. Whitney, cardio-vascular observations in particular; Knight Dunlap, psychologic observations and methods; W. H. Wilmer and Conrad Berens, ocular functions; E. R. Lewis, the observations on hearing and the motion-sensing apparatus of the ear; and Stewart Paton the effects on personality. Industrial physicians should read the entire seven papers which are contained on pages 1382–1400 of the above mentioned Journal.

✱

Army Shoe and Mild Foot Disabilities.—Ninety-eight per cent of recruits can be fitted with the army shoe. This fact alone is the strongest possible recommendation for its use. A shoe will enlarge sidewise but never lengthwise. Repairing tends to shorten a shoe and re-building actually does shorten it. Short shoes cause more foot-troubles than narrow ones; hence the great need of the two-thirds inch room in the length of the shoe. The size and musculature of the foot increase very noticeably after a few months use. With the army shoe, correctly fitted, corns disappear and "ingrowing" gradually ceases. The preservation of the transverse arch of the foot depends mostly upon the strength of the muscles within the foot. In the manufacture of shoes, the inner sole is likely to be concave instead of convex as it should be to match the contour of the transverse arch of the foot.—J. T. Rugh, *Jour. A. M. A.*, Oct. 12, 1918, pp. 1215–1216.

✱

Federal Policies for Women in Industry.—General Orders No. 13 by the Chief of Ordnance declared that the eight-hour day, prohibition of night work, one day of rest in seven, a minimum wage based on the cost of living, and equal pay for women doing the same work as men were the "mechanisms of efficiency." The Committee on Women in Industry of the Department of Labor, with the approval of the Secretary of Labor, recommended standards for the employment of women, in brief, as follows: No more than the eight-hour day or the forty-eight hour week; half holiday on Saturday; one day of rest in seven; at least three-quarters of an hour be allowed for a meal; rest periods of ten minutes in the middle of each working period without thereby increasing the length of the working day; no woman employed between the hours of 10.00 p. m. and 6.00 a. m.; wages equal with men's; wage rate based on the cost of living for dependents and not merely for the individual; the observance of state labor laws and industrial codes covering comfort and sanitation with special recommendations for posture at work, safety, selection of occupations for women (those undesirable are: constant standing, standing or other postures causing physical strain, repeated lifting of weights of twenty-five pounds or over, or other abnormally fatiguing motions, heavy work, exposure to heat over 80° or cold under 50°, adequate safeguards against dust, fumes, and poisons); and industries employing poisons which are proved to be more injurious to women than to men. Furthermore, uniforms, caps, and shoes should be featured. No work shall be given out to be done at home. Standards for employment management, supervising women, and selection of workers through physical equipment and through experience, as well as means for promoting coöperation of workers, are necessary.—Mary Van Kleeck, *The Annals of the American Academy of Political and Social Science*, Jan., 1919, pp. 87–94.

✱

Employing Expectant Mothers in Munition Factories.—The investigators in Leeds, England, under the prematernity scheme for the transfer of women, report that the applicants were referred to the factory medical officer, who passed on their physical state. Women on becoming pregnant are very adversely effected by night work apart from any degree of heaviness. Before the fourth month, they are moved from any work involving heavy lifting or sudden strain. At the end of the fourth month, they are transferred to light sedentary work and given less skilled operations for which they are paid at the ordinary standard rate for their work. At the end of the seventh month, or earlier if there are any medical reasons, they are transferred to work such as the general clothing store and sewing depot, where they make and mend overalls, caps, gloves, etc., used by other workers. The rest of the day is given up to the making of clothes for the baby, under the help and guidance of the sewing depot. They are allowed to lie down in the rest room during part of their dinner hour, and at any time if indisposed. They may remain at work until labor begins.—Adamson and Palmer-Jones, *British Med. Jour.*, Sept. 21, 1918, p. 309.

✱

Testing the Capacity of the Heart by Walking.—Any increased rapidity in the action of the heart in a subject, after a hike of from two to fifteen miles, which has not disappeared by the end of an hour, is not normal.—Joltrain and Baufle, *Abst. by Jour. A. M. A.*, Dec. 7, 1918, p. 1944, from Bulletins de la Société Médicale des Hopitaux, Paris.

✱

Maternal Nursing and the Sculptor's Model.—It is suggested that the premature and withered appearance of the married women in manufacturing districts is in some degree attributable to the check imposed on nursing their babies because of their employment.—Sir James Crichton-Browne, *Jour. of State Medicine*, cited by *Jour. A. M. A.*, Dec. 28, 1918, p. 2120.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D

Effect of "Ground Glass" on the Gastro-Intestinal Tract of Dogs.—Many reports of so-called "glass poisoning" were made by newspapers and individuals, and the subject has been discussed in a number of medical journals throughout the country. In an attempt to determine what lesions, if any, are produced by glass in the gastro-intestinal tract, feeding experiments were carried out on dogs. The experiments proved that the ingestion of ground or powdered glass has no toxic effect and produces no lesion, either gross or microscopic, on the gastro-intestinal tract of dogs.—J. S. Simmons and W. C. von Glahn, *Jour. A. M. A.*, 71, 2127 (1918).

✽

Effect of Typhoid Lipovaccine in Increasing Susceptibility to Other Diseases.—There is no evidence that there is increased susceptibility to streptococcus inoculation in mice following typhoid vaccination. There is a slight amount of evidence in favor of increased resistance to the streptococcus possibly due to the mobilization of the leucocytes. It is probable that these facts will be applicable to other vaccines and other diseases, for in a series of 32 mice vaccinated against pneumococcus, similar results have been obtained.—E. M. Medlar, *Jour. A. M. A.*, 71, 2146 (1918).

✽

Increased Susceptibility of X-Rayed Guinea Pigs to Inoculation with Tubercle Bacilli.—Under the conditions of these experiments the exposure of guinea pigs to X-ray does not increase their susceptibility to the tubercle bacillus. Rayed guinea pigs are thereby rendered more susceptible to contaminating and to secondary infections. The method is of practical value in routine diagnosis and is unreliable unless carefully controlled by the use of the accepted methods which have become standard as laboratory practice.—Ellis Kellert, *Jour. Med. Research*, 39, 93 (1918).

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New Method for the Enrichment of Tubercle Bacilli in Sputum.—The sputum is placed in a test tube and diluted with equal volume of water. After the addition of a few drops of ammonia the tube is placed in the water bath at 50° C. for 15 to 20 minutes. Then is added a 10 per cent solution of aluminium sulphate in the proportion of 0.5 cc. to 10 cc. of diluted sputum. After the addition of several drops of alcohol-chloroform (equal parts), the mixture is well shaken and then centrifuged. Three layers are formed; smears are made from the middle layer, fixed in the flame and stained according to the method of Ziehl-Neelsen (Carbolfuchsin, decolorized with HCl-alcohol of 5 per cent strength of acid, and counterstained with methylene blue). In the absence of a centrifuge, the technic can be simplified. The diluted sputum and added ammonia are heated over a Bunsen burner; then the 10 per cent aluminium sulphate solution is added, well shaken and the whole raised to ebullition. The precipitate formed is smeared on slides, fixed and stained in the usual way. The ammonia has the effect not only of rendering the sputum homogeneous, but also of causing a precipitate in the presence of the aluminium sulphate. This precipitate, which appears throughout the entire tube, entangles the tubercle bacilli. The addition of equal parts of alcohol and chloroform renders the procedure more sensitive.

The author made a comparative test of his method with the classical method and with the antiformin method of Uhlenhuth in the examination of 1,200 sputa. Tubercle bacilli were found in 288. His method yielded the largest percentage of positive findings.—Kurt Bauer, *Deutsche med. Wochnschr.*, 44, 266 (1918).

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Prophylaxis of Malaria.—No deafness, visual defects or other disadvantages are likely to accompany or follow the administration of quinine, 30 grains daily for three to four weeks. Arsenic is a valuable adjunct to quinine in the treatment of malaria. The malignant tertian parasite would appear to be the most resistant type. As a result of intensive quinine treatment applied to nearly 39,000 men the opinion has been formed that complete sterilization of the blood cannot be obtained, that the drug is able to kill off young ring forms, but has no effect on gamate forms; that it has a powerful action by this method of administration of rapidly raising the hemoglobin of the blood. The chief measures on which we must rely for the eradication of malaria pertain to the destruction of the mosquito, the protection of man from bites, and the cure of the infected. Prophylactic quinine is a waste of time and money. We should search for some remedy other than quinine for the destruction of the malarial parasite.—G. T. Rawnsley and J. Warnock, *Jour. Royal Army Med. Corps*, 31, 60 and 31, 272 (1918).

Enrichment Method for Demonstrating the Cholera Organism in Feces.—The liquid medium contains: Terauchi peptone 40 grams, 10 per cent sodium carbonate solution 80 cc., sodium chloride 5 grams, gentian violet 10 cc. of a 1 to 200 dilution of a 1 per cent solution in alc. distilled water to make 1 liter; ten cc. of this medium is placed in each tube. The solid medium is the liquid medium plus 20 grams powdered agar per liter. The suspected feces (2 loops) should be sown into a tube of the liquid medium, which is then incubated for 6 hours. Subcultures on the solid medium are then made from the cloudiness about the walls at the top of the culture; they are incubated for 12 to 16 hours, after which Pfeiffer's phenomenon and other tests are made. In 39 out of 50 cases the only organism carried over was the true cholera vibrio. The cholera organism was recovered in every instance when a sample of feces was mixed with a loop of culture in a dilution of 1 to 20,000, which shows the efficiency of the method.—K. Sukegawa, *Japanese Med. Lit.*, 3, 7 (1918); *Chem. Abst.*, 12, 2594 (1918).

✻

Bacteriological Investigations of the Urine in Influenza.—To obviate the inconvenience of demonstrating the Pfeiffer bacillus from the blood, the author sought to obtain the same information by making cultures or inoculations with the urine. The urine was procured aseptically with the catheter and added in 10 mil quantities to citrated peptone water, into which a few drops of hen's or duck's blood had previously been allowed to fall. This procedure not only proved successful in showing the Pfeiffer bacillus, but permitted of its detection in ten cases in which blood cultures had been negative. The same procedure, carried out in the case of two control subjects not suffering from influenza, yielded negative results.—Dujarric de la Riviere, *Presse Médicale*, Oct. 24, 1918; *N. Y. Med. Jour.*, 109, 3 (1919).

✻

Sachs-Georgi Precipitation Test for Syphilis.—The author has very greatly simplified the technic of the diagnosis of syphilis by flocculation. Three drops of fresh human non-inactivated serum are mixed with one cc. of a sodium chloride solution and inactivated by heating at 56° C. for one-half hour. Then half a cc. of a cholesterinized extract of calf's heart, to a dilution of $^1/_6$, is placed in the oven for 2 hours and then allowed to remain during the night at room temperature. A flocculation represents a positive result. The results offer a concordance with Wassermann's reaction in some 91 per cent of the cases. It is more sensitive and also much more simple than the original procedure of Sachs and Georgi, who utilized, in principle, the precipitation of the globulins under the favorable action of cholesterin.—M. Mandelbaum, *Münchener med. Wchnschr.*, Oct. 12, 1918; *Med. Rec.*, 95, 76 (1919).

✻

Action of Chlorinated Antiseptics on Blood Clot.—The work demonstrates that the chlorinated antiseptics have no power to penetrate blood clots and destroy bacteria therein contained. Correspondingly, blood clots may protect virulent bacteria for a long period of time and the organisms properly planted will be able to proliferate in a normal manner. It seems probable that the fibrin of the blood clot is the resistant substance as plasma and red and white cells are easily dissolved by these antiseptics.—H. D. Taylor and M. G. Stebbins, *Jour. Exp. Med.*, 29, 125 (1919).

✻

Meningococci and Antimeningococcic Serums.—A general review of the writer's work on meningococci with especial reference to agglutination and complement fixation. Three special media were used, and the characters of the organisms when grown upon them are described. Four horse antimeningococcic serums were prepared, A, B, C, and D. These are distributed by the Institute Pasteur for diagnostic purposes. Only one strain corresponding with serum D was met with and seven strains exclusively sensitive to serum C out of 200 strains examined. More than half the remainder reacted with serum B. Gordon's types I and III belong to serum A group, and his II and IV to group B. Meningococci are not easily agglutinable organisms. Meningococci were found to be strongly lysogenic and highly susceptible to specific lysins. The specificity of the complement fixation reaction was not found to be high. In collaboration with Netter a practical method of valuation of the therapeutic action of an antiserum was worked out. The writers consider that their results support their general thesis that each microbe is a "mosaic" of antigens, of which one is dominant and fixes the "type" to which a strain belongs.—Nicolle Debains and Jouan, *Ann. de l'Inst. Pasteur*, 32, 150 (1918); *Rev. Bact.*, 8, 33 (1918.)

✻

The Impossibility of Watering Milk by Giving Large Quantities of Water to the Cow.—The author reviewed the work of Malpeaux, Mallèvre and Regnard which show conclusively that it is impossible to produce watered milk by giving excessive quantities of water to cows. Many dairy experts and chemists still contend that it can be done.—C. Porcher, *Ann. fals.*, 10, 304; *Bull. Agr. Intelligence*, 9, 74 (1918); *Chem. Abst.*, 12, 1569 (1918).

Antigonococcus Lipo-Vaccine.—The vaccine is prepared by the method used in the preparation of the antityphoid lipo-vaccine of le Moignic and Pinoy. Eighteen-hour-old cultures of the gonococcus are killed by being kept in the ice-chest for 24 hours. The killed cocci are then incorporated with the oils used in the preparation of the antityphoid lipo-vaccine. The vaccine in use at the present time contains about 5 mgs. of dead culture or about 12,500 millions of gonococci in one cc. The commencing dose is 0.5 cc. The vaccine is injected into the subcutaneous tissue of the flank, and there is but little local reaction.—Le Moignic, Sezary and Demonchy, *Compt. rend de la Soc. de Biologie*, 84, 299 (1918); Rev., *Bact.*, 8, 57 (1918).

✱

The Bacteriology of Measles.—The chief bacteria to engage the attention in connection with measles at present are: (1) the diplo-coccus found by Tunnicliff in the blood early in the attack and in the throat and nose; (2) influenza bacilli, and (3) hemolytic strepto-cocci.—Ludwig Hektoen, *Jour. Am. Med. Assoc.*, 71, 1201 (1918).

✱

A Study of Diphtheria Carriers in a Military Camp.—The data for the paper were derived from a study of a large number of cases and carriers. A single negative culture is only of relative value. The importance of nasal cultures is shown by the fact that in routine cultures taken from carriers, 26 per cent were positive from the nose. Cultures from chronic carriers should be tested for virulence. The carrier state is maintained by some underlying pathologic condition of the affected tissues. In the great majority of cases the carriers harbor the bacilli in the tonsils; a few carry the germs in the nose only; a small group maintains the infection in both nose and tonsils. In persistent carriers in whom the focus of infection is the tonsil, enucleation offers the only certain procedure for terminating the carrier state. The hospital personnel should be given a Schick test, and those giving a positive reaction should be immunized with toxin-antitoxin mixture.—F. R. Keefer, S. A. Friedberg, and J. D. Aronson, *Jour. Am. Med. Assoc.*, 71, 1206 (1918).

✱

Freezing Point of Blood Serum in Diagnosis of Typhoid.—The author investigated the osmotic pressure in the blood serum of twelve typhoid patients and four other patients whose disease proved not to be typhoid. In 75 per cent of the typhoid cases the osmotic pressure in the serum was found decidedly reduced at the very beginning and through the height of the disease. In others it fluctuated. He suggests that this early reduction in the osmotic pressure as shown by the freezing point may prove useful in the very early differential diagnosis of typhoid.—A. E. Adler, *Corresp. Blatt f. Schweizer Aerzte*, 48, 1072 (1918); *Jour. Am. Med. Assoc.*, 71, 1176 (1918).

✱

Spirochetes in Rats at Lima.—Rats caught at different points in Lima were found to harbor the spirichete of hemorrhagic jaundice. The organism was demonstrated in two adult rats. The kidneys were the only organs examined. The spirochetes were found in the convoluted tubules; sometimes they were in such numbers that they obstructed the lumen.—R. E. Ribeyro, *Cronica Medica, Lima*, 35, 157 (1918); *Jour. Am. Med. Assoc.*, 71, 935 (1918).

✱

Brilliant Green as an Antiseptic.—Brilliant green is an active and efficient antiseptic. It is non-irritant and acts well in the presence of serum. It stains dead tissue green and in this way may aid the surgeon in determining what to excise. It can be used after the method of Carrel.—C. H. S. Webb, *Jour. Royal Army Med. Corps*, 31, 315 (1918).

✱

Spirochetosis Icterohemorrhagica.—An address delivered before the Section of Medicine of the Royal Medical Society which deals with the description of the organism, the clinical manifestations, pathology, etiology, diagnosis, and laboratory findings.—B. Dawson, *Lancet*, No. 4966, p. 575 (1918).

✱

The Influenza Epidemic at Camp Devens, Mass.—B. influenzæ has been isolated from pneumonia sputum, pleural fluids, and the nasopharynx during life, and from the heart's blood, lungs, and accessory sinuses postmortem, in a high percentage of cases of this disease, very frequently in pure culture. Specific agglutinins have been found in the serum of convalescents which produce satisfactory reactions, especially during the weeks following infection, on homogeneous and heterologous cultures. A high titer serum has been produced in rabbits by repeated inoculations with living cultures. This serum has shown an increase of potency with the passage of time. Such serum should be of value as a means of differentiating allied organisms.—L. H. Spooner, J. M. Scott and E. H. Heath, *Jour. A. M. A.*, 72, 155 (1919).

✱

Vaccination Against Anthrax.—The author describes an anti-anthrax vaccine now made in Uruguay. It is a uniform emulsion of a certain number of free spores, and confers a more durable immunity than vaccines made from the bacteria themselves.—H. J. Rossello, *Rev. Inst. Bact. (Buenos Aires)*, *Jour. A. M. A.*, 72, 232 (1919).

Sodium Citrate Transfusions.—One hundred transfusions by the sodium citrate method have been performed for various disturbances, and the favorable results compare almost absolutely with those obtained by other authors using unmixed blood. It should, therefore, except only in special instances, be adopted as the routine method, since both the clinical and the laboratory findings support this view.—A. L. Garbat, *Jour. A. M. A.*, 72, 1 (1919).

✱

Influenza at the Puget Sound Navy Yard.—The authors believe that the disease at the navy yard was due to an organism which should be classed as a hemolytic streptococcus. The findings failed to show that the influenza bacillus was in any way connected with the production of the disease. The use of killed cultures prevented the development of the disease in many of the personnel and modified its course favorably in others. A mixture of two or more strains has been employed. No suggestion is offered with regard to the duration of the immunity produced.—C. F. Ely, B. J. Lloyd, C. D. Hitchcock and D. H. Nickson, *Jour. A. M. A.*, 72, 24 (1919).

✱

Etiology of Yellow Fever.—The results obtained are the result of a study carried on at Guayaquil, Ecuador, under the auspices of the International Health Board of the Rockefeller Foundation. The blood of yellow fever patients was injected into guinea pigs. Dark field examination of the blood, liver and kidneys of these inoculated animals revealed the presence of an organism whose morphologic characters closely resembled those of the organism (Leptospira) described in cases of infectious jaundice. By the use of special methods the organism has been obtained in pure culture. Pure cultures were obtained directly from the blood of yellow fever patients in a limited number of cases. The organism does not grow on ordinary bacterial culture mediums. A positive Pfeiffer phenomenon was obtained in the majority of instances with serum derived from convalescents from yellow fever when tested with the organism isolated from the cases or infected animals. The virus is filtrable.—H. Noguchi, *Jour. A. M. A.*, 72, 187 (1919).

✱

Triple-Dye Medium for the Diagnosis of Typhoid and Dysentery.—The formula for the medium is: agar (3 per cent), 1,000 cc.; lactose, 30 grams; eriochrom yellow 2 G, 1 gram; helvitic blue, 0.65 grams. The dyes are added to the lactose agar and the medium is sterilized in the Arnold for fifteen minutes on three consecutive days. The advantages of the medium are: (a) simple preparation; (b) double color change; (c) sharp color change with capacity of B. coli colonies contrasted with transparent growth of typhoid-dysentery colonies; (d) color change as obvious with reflected as with transmitted light, natural or artificial; (e) very slight inhibition of growth with no alteration in the agglutinability of the typhoid or dysentery strains; and (f) total suppression of cocci and spore-formers. The green medium is turned blue by B. coli and acid-forming organisms, while the typhoid-dysentery group gives it a yellow color.—Rudolf Massini, *Corr.-bl. schweiz. Aerzte*, 48, 887 (1918); *Abst. Bact.*, 2, 204 (1918).

✱

Effect of Cotton Stoppers on Bacterial Counts in Bacteriologic Technic.—It appears from the results that about 8 per cent of the organisms adhere to the cotton stopper on shaking the blank. Organisms were found on strands of cotton. B. subtilis did not generally survive sterilization in the center of cotton stoppers. Shaking bottled milk with the original cap up and inverted gave satisfactory agitation for a representative sample. No difference was found in the propagation of bacteria in glass or paper containers.—R. S. Dearstyne, *Jour. Dairy Sc.*, 1, 512 (1918).

✱

Importance of Geologic Factors in Sewage Purification.—In the dissolved oxygen absorption test for the standardization of a sewage effluent, it is essential that the latter should be diluted with water collected from the river or stream into which the effluent is discharged instead of with laboratory tap-water. The results also suggest that waters from sedimentary rocks, and those associated with the detritus of eruptive rocks, where the active chemical constituents have been or are released, may be expected to affect profoundly the biological processes of oxidation.—E. A. and A. E. Cooper, *Biochem. Jour.*, 12, 275 (1918); *Jour. Soc. Chem. Ind.*, 37, 747 a (1918).

✱

Brom Cresol Purple and Litmus as Indicators for the Classification of Tubercle Bacilli.—In these experiments three human and three bovine cultures were used, and at least weekly records were made for fifteen weeks. In litmus glycerine bouillon both types turned the bouillon more or less blue at first and the bovine cultures remained bluish; but in human cultures the bouillon, instead of becoming red, gradually became yellow. With the human strains the brom cresol purple bouillon became first light straw-colored, then lemon-yellow. Both indicators are valuable for differentiating types of tubercle bacilli.—L. Frothingham, *Jour. Med. Res.*, 39, 153 (1918).